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ABSTRACT

This document contains supporting material for the survey on current practice in the construction and use of mathematical models for education. Two kinds of supporting material are included: (1) the responses to the questionnaire, and (2) supporting documents and other materials concerning the mathematical model-building effort in education. Replies to the questionnaire are first cross-classified by country, and then by general characteristics of the model, type of institution responsible for constructing the model, levels of education covered by the model, nature of the mathematical relationships, the parameter estimation procedures used, the type of model, and sources of information. A list of the documents, a list of respondents, the questionnaire, an index to model titles, and a master index of characteristics of the models surveyed comprise the remainder of the document. (DT)

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MATHEMATICAL MODELS FOR THE EDUCATION SECTOR

LES MODÈLES MATHÉMATIQUES DU SECTEUR ENSEIGNEMENT

ANNEXES

SUPPORTING MATERIAL TO THE SURVEY

DONNÉES DE BASE DE L'ENQUÊTE

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

2

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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PREFACE

The logic and tools of mathematics have proved exceedingly useful in helping to understand the physical phenomena around us. The relevance of these approaches for tackling the problems of individual and social behaviour is, however, disputable. Nevertheless, social sciences have come to rely on mathematics to an increasing extent in recent years. In the case of theoretical and applied economics we have a long experience in the use of mathematical methods but for social phenomena, other than economics, the use of mathematics has been of a relatively recent origin. The report entitled Mathematical Models for the Education Sector: A Survey (1) attempts to document the application of mathematical models applied to the education sector in a large number of cases among the Member countries of the OECD. In each case a detailed interview, based on a comprehensive questionnaire, was carried out with the person concerned with the construction of a particular mathematical model. Information thus obtained from 122 respondents was then analysed in terms of a classificatory framework. This provided an aggregate view of a study of the art of constructing and applying mathematical models to the education sector. The next step entailed a detailed and substantive description of the main and general features of different mathematical models used in education. The purpose of the description was to identify significant technical and substantive problems encountered in applying mathematical models to education and to demonstrate the way in which these problems have been treated. Finally, the study involved an examination of mathematical models designed for the education sector. The main question posed here is whether the mathematical models have proved useful in formulating and solving some of the problems of educational policy.

This volume summarizes a vast body of information which provided the basis of the analysis contained in the main report (2) in which reference is made to a number of annexes contained herein. These annexes have been designed to serve as reference material for investigators in this field. They are based on two kinds of supporting material:

a) the responses to the questionnaire;
b) supporting documents and other material concerning the mathematical model-building effort in education.

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(1) Published by the OECD, Paris, 1973.

(2) Ibid.

This material provides a unique collection of information which could be further explored for a deeper understanding of the nature and role of mathematical models for the education sector.

The survey is a result of a collective project carried out by a team of investigators under the direction of Dr. Abdul G. Khan, in close collaboration with Dr. Paul M. LeVasseur, who are responsible for the co-authorship of the report and the preparation of these annexes. The participation of a number of individuals who made major contributions in the preparation of different parts of the survey and worked as members of the team during the survey or during the period in which the results were being analysed is acknowledged in the main report.

HOW TO USE THE ANNEXES

INTRODUCTION

The annexes which follow are designed to provide the reader with an easy-to-use reference guide enabling him to identify those models covered in the report *Mathematical Models for the Education Sector: A Survey* which will be of greatest interest to him. Its purposes are:

1. To provide the reader with a complete picture of the coverage of the survey;
2. To be used as a research aid for identifying specific models of particular interest for each reader;
3. To be used as a source of additional information about each model covered in the survey.

The seven annexes present in tabular form a set of basic data concerning the 122 models covered in the survey. A brief description of the contents of each annex follows.

ANNEX 1

The chief instrument used in the survey was a comprehensive questionnaire. A large number of the questions asked of the respondents were coded, in order that the replies could be computerised for retrieval and processing. The information was coded for computer processing (one punched card per questionnaire) and a brief indication of the coding procedures used is summarised at the beginning of this annex. The coded information was processed by an IBM/360 computer using programmes especially written for this purpose. The results of this processing appear in the nine tables of this annex. The tables give a quantitative summary of the characteristics of the models and their inter-relationships by counting the number of models having each of the characteristics.

Table 1 provides a summary of the replies to the questionnaire cross-classified by country. It includes all the characteristics of the models and shows the number of models found in each country having the characteristics listed. Tables 2 through 9 tabulate the inter-relationships of various sets of characteristics for all the models, independent of the country in which the model work was carried out. These tables are designed to show the frequency with which the models covered in the survey have the same joint characteristics. For example, it can be seen how many of the forecasting models use impressions of experts only as the basis for parameter estimation (from Table 8).

The primary classifications used in Tables 2 through 9 pertain to the general characteristics of the model, the type of institution responsible for constructing the model, the levels of education covered by the model, the nature of the mathematical relationships, the parameter estimation procedures used, the type of model and the sources of information.

In examples below, it will be seen how Table 1 in this annex can be used as a starting point for researching models of potential interest to the reader. Tables 2 through 9 are a selected set of cross-classifications designed to provide the reader with additional quantitative information about how many of the 122 models surveyed share common characteristics.

ANNEX 2

The eighteen tables in Parts A and B of this annex are based on a classification of the models by subject matter. The nine subject-matter categories used fall into one of three levels of comprehensiveness: the education system by itself, the education system related to other systems, or individual educational institutions only. The categories used are: comprehensive education, student flow system, student parameter models, teacher demand and/or supply, physical and/or financial resources, comprehensive-externally linked, manpower linked, returns to education and institutional. These categories also provide a basis for ordering the models by serial number from 1 to 122.

The nine tables in Part A of this annex present some basic characteristics of each of the models. These include broad functional characteristics, analytic characteristics and builder characteristics. The name of the questionnaire respondent, the country in which the model was constructed and the work status at the time of the survey (planned, in progress or finished) are also shown. Finally, the type of computer and programming language used is indicated for those models which have been computerised.

The nine tables in Part B provide a detailed tabulation of each of the model's functional characteristics. These tables result from an in-depth analysis of the purposes of the model in each of the four functional categories appearing in the tables of Part A (descriptive, forecasting, decision-making and simulation). A more detailed discussion of the functional classification of the models is provided in the report of the survey.

ANNEX 3

This annex contains a list of documents relevant to the model-building efforts included in the survey. The documents are grouped according to the nine subject matter classifications found in Annex 2 and are listed in serial number order of the models. Where no documents directly related to the model work were available at the time, the word "none" appears next to the model code. An asterisk appearing next to an author's name indicates that the author is a respondent to the questionnaire and his address is given in the List of Respondents (Annex 4). A number of documents listed do not cite authorship.

ANNEX 4

This annex is an alphabetical listing of the respondents to the questionnaire. Many of the addresses shown were recorded at the time of the survey, but some were subsequently up-dated on the basis of information provided by the respondents. In most cases, the respondent was the individual directly responsible for the construction of the model. However, the names of certain individuals who worked on the model do not necessarily appear in this annex, since they were not interviewed directly. The affiliation of the respondent is also shown.

ANNEX 5

This annex contains a copy of the questionnaire used by the interviewers in conducting the survey. The questionnaire was designed to serve as a "programmed" checklist which followed a logical sequence of questioning and provided uniformity for subsequent analysis of the results. The flow diagram preceding the questionnaire shows the sequence of questioning. In drawing up the questionnaire, past experience from other questionnaire surveys was used whenever appropriate and a list of the questionnaires consulted is provided at the end of the annex.

ANNEX 6

This annex contains a list of titles of all the models covered in the survey. Using the model code, the list is presented alphabetically by country. The model code consists of two or three letters corresponding to the country names, followed by the number of the model within the country (01, 02, ...). In addition to the model code, the serial number of each model is also shown.

ANNEX 7

Annex 7 is a master index of the models surveyed and presents in tabular form all the information provided in the replies to the questionnaire. It is compiled on the basis of a complete computer listing of all information coded from the 122 questionnaires. Its use is described more fully below.

USING THE ANNEXES

The annexes have been designed to serve a variety of purposes. For example, a reader may be interested in identifying those models which were surveyed in his country. It is for this reason that, in addition to a serial number identification, a country code has also been attributed to each model. Another reader may be interested in a specific class of models such as models which relate the educational system to the manpower system. To assist this reader in more quickly identifying those models which are of specific interest to him, the subject matter category "manpower linked" has been defined within which the models covering education and manpower have been grouped together. A third person may be interested in identifying if models which have certain mathematical characteristics appear in the survey. The annexes make it possible for him to identify, for example, those models which include non-linear equations. It is clear, therefore, that each reader may wish to use these annexes as a basic research tool in a manner which best serves his individual interests. Because of the vast amount of material contained in the annexes, it will be necessary to look closely at each annex to determine which information is of most interest. Therefore, it may be worth while to present brief guidelines here which will assist the user. A brief summary guide to how the annexes may be used follows.

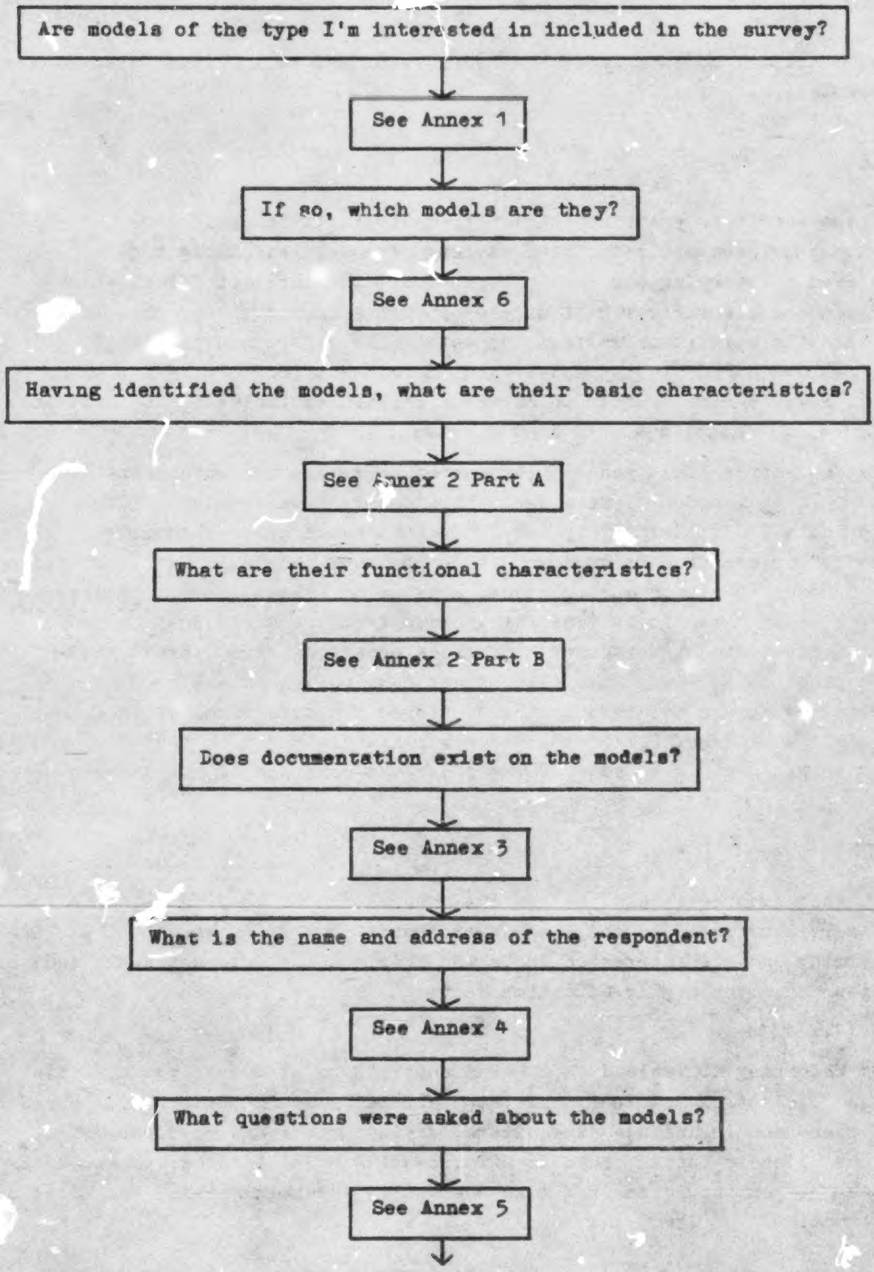
SUMMARY USER'S GUIDE

If you wish to know:	Refer to:
The number of models in each country which have specific characteristics of interest to you.	Annex 1 (Table 1)
The breakdown of the 122 models cross-classified by selected characteristics of general interest.	Annex 1 (Tables 2-9)
The basic characteristics of each model within a given subject-matter category.	Annex 2 Part A
The functional characteristics (purposes) of each model within a given subject-matter category.	Annex 2 Part B
If documentation exists for a given model.	Annex 3
The name and address of the respondent to the questionnaire.	Annex 4
What questions were posed and how technical terms were defined.	Annex 5
The titles of the models surveyed in each country.	Annex 6
The replies to the questionnaire for all models surveyed.	Annex 7

The above shows how a single annex can be used to answer a specific question. To derive the maximum benefit from the annexes, however, the inter-relationships among them must be taken into consideration. A reader may wish to know whether a specific type of model is included in the survey. Table 1 in Annex 1 will provide him with information on whether or not one or more models of the type he is interested in have been covered, and in which country or countries they were constructed. From the master index in Annex 7 it will be possible for him to identify the title of each model which is of potential interest as well as the name of the respondent to the questionnaire as well as replies to specific questions posed during the interview. Having identified these models, Annex 2 can be used to obtain information about the basic and functional characteristics of the models. Whether or not documentation on the models exists will be found in

Annex 3. The name and the address of the respondent for each model can be found in Annex 4. The questionnaire in Annex 5 will be useful for clarifying exactly what questions were posed concerning the models' characteristics and Annex 7 provides a full tabulation of how each question was answered. The procedures herein described is summarised in the chart below.

A FLOW-CHART OF HOW TO [illegible] THE ANNEXES IN SEQUENCE


Are models of the type I'm interested in included in the survey?
See Annex 1
If so, which models are they?
See Annex 6
Having identified the models, what are their basic characteristics?
See Annex 2 Part A
What are their functional characteristics?
See Annex 2 Part B
Does documentation exist on the models?
See Annex 3
What is the name and address of the respondent?
See Annex 4
What questions were asked about the models?
See Annex 5

(Flow-chart cont.)

What were the replies of the respondents to specific questions?

See Annex 7

It may be helpful to the reader if the above procedure is illustrated by two concrete examples.

EXAMPLE 1

This example is provided to illustrate that, in designing the questionnaire, provision was made for a variety of models which might be encountered in carrying out the survey. Thus, the level of detail which appears in the classification of models appearing in the main report was built into the questionnaire from the outset, in order that the interviewer could accommodate any model which he encountered. It is not certain, however, that models which treat certain variables or use certain techniques necessarily appear in the survey.

Let us suppose that you are interested in models for which first and second or higher order difference equations have been defined. Note that in Table 1 of Annex 1 "Replies to Questionnaire Cross-Classified by Country" information is provided about how many models in each country surveyed have certain characteristics. One of the items listed concerns different equations. It is immediately seen from the table that no model for which first and higher order difference equations were defined was found during the survey. This illustrates how Annex 1 can be used to determine whether or not information on a specific type of model is contained in the annexes. It is therefore worth while to refer to Table 1 in Annex 1 to get an initial idea of the scope and coverage of the annexes.

EXAMPLE 2

In this example we can see how the annexes can be used in sequence in the manner illustrated in the flow chart above. Let us suppose that you are from Germany and are interested in German models which forecast costs and expenditures in the higher education sector.

Step 1 (Annex 1)

By referring to Table 1 in Annex 1 under "Type of Model" you will find that ten forecasting models from Germany are included in the survey. Further, two of these models include expenditure, capital stock and cost variables. Since one of these models could be a forecasting model for the higher education sector, you should now refer to the Master Index in Annex 7 for additional information.

Step 2 (Annex 7)

In Annex 7 the models are listed in country code sequence. Under Germany, fourteen models are listed. By referring to the column headed "Level of Education", you will quickly see that five of the German models cover the higher education sector. Under the headings "Expenditure, Capital Stock and Cost Variables" and "Type of Model" you can further determine that one of these models is of the type you are looking for, namely, GER 05 (Serial No. 51) "A University Student Forecasting Model". You will note that the title alone is inadequate for determining that this model forecasts costs and expenditures and it is for this reason that the Master Index has been compiled.

Step 3 (Annex 2)

Having identified the model that interests you, Annex 2 can be used to obtain supplementary information about certain basic and functional characteristics. In Annex 2 Part A, Table 5 provides some basic characteristics of the model, which is the first model listed. For example, you can see that the model was finished at the time of the survey, that it is numerical and applied (Analytic Characteristics) and was constructed by a principal government organisation responsible for education (Builder Characteristics). Further, it was computerised and details on the computers and programming language used are also shown (Type of Computer Used).

Similarly, Table 5 in Annex 2 Part B provides information about which variables are forecasted by this model. You will find from this table that, in addition to costs and expenditures, the model provides forecasts of enrolments, production of graduates, success rates and/or drop-outs and new entrants. For information on documentation, you can now turn to Annex 3.

Step 4 (Annex 3)

In Annex 3, when looking up the documentation on Model No. 51, you are instructed to "see Germany Model 4, Serial No. 7". By referring back to Serial No. 7 you will find references to six documents in German which provide additional information about this model. To contact the respondent directly, you may next refer to Annex 4.

Step 5 (Annex 4)

In the master index Dr. Roeloffs is listed as the respondent to the questionnaire. His address is provided in the alphabetical listing of respondents in Annex 4.

In addition to the information about the model which you will have found by referring to Annexes 2, 3 and 4, a considerable amount of additional information can be gleaned from the Master Index (Annex 7). In order to better understand the nature of the information provided under each heading in Annex 7, you are encouraged to read the complete questionnaire used in the survey by the interviewers (Annex 5). You may then consult the Master Index in detail to obtain full information on the responses to each question asked.

Example 2 above has been deliberately over-simplified for purposes of illustration. In an actual case, the reader is likely to be interested in models constructed both within and outside his country. Nevertheless, it illustrates how these annexes may be used to assist researchers in identifying those models among the 122 surveyed which may be of special interest for them and how they may obtain detailed information about the characteristics of each model. The purpose of issuing this volume as a companion to the report of the survey is to make available to individuals interested in mathematical models the full amount of information which the Secretariat had at its disposal for compiling the report. It is hoped that these annexes will be used as a basic reference guide to mathematical models in education. Since the information contained herein represents the full amount of information at the Secretariat's disposal, readers who desire more details about a particular model, or more up-to-date information regarding subsequent work on the model, are asked to request this information directly from the respondent.

PREFACE

La logique des mathématiques et les outils de cette science se sont avérés extrêmement utiles pour aider à comprendre les phénomènes physiques qui nous entourent. Cette approche est toutefois contestable lorsqu'il s'agit de comprendre le comportement individuel et social. Quoi qu'il en soit, depuis quelques années, les sciences sociales en sont venues à s'appuyer de plus en plus sur les mathématiques, mais si nous avons une longue expérience des méthodes mathématiques appliquées à l'économie théorique et appliquée, leur utilisation pour le traitement des phénomènes sociaux autres que l'économie est relativement récente. Le rapport intitulé Les modèles mathématiques du secteur Enseignement (1) tente d'apporter des informations concernant un grand nombre d'applications des modèles mathématiques dans le secteur de l'enseignement dans les pays Membres de l'OCDE. Dans chaque cas, une enquête détaillée établie à partir d'un questionnaire très complet a été menée auprès de la personne chargée de la construction d'un modèle mathématique particulier. Les informations ainsi recueillies auprès de 122 personnes ont été analysées en fonction d'un cadre de classification. Nous avons ainsi obtenu une vue d'ensemble de la façon de construire et d'appliquer les modèles mathématiques dans le secteur de l'enseignement. Nous avons ensuite procédé à une description détaillée des principales caractéristiques des différents modèles mathématiques utilisés. Cette description avait pour but d'identifier les grands problèmes techniques qui se posent lorsqu'on applique les modèles mathématiques à l'enseignement, et d'expliquer la manière de les résoudre. Enfin, l'étude a comporté un examen des modèles mathématiques conçus pour l'enseignement. La question qui se pose est de savoir dans quelle mesure ces modèles ont été utiles pour la formulation et la résolution de certains problèmes propres à la politique de l'enseignement.

Le présent volume résume la somme considérable des informations qui ont constitué la base de l'analyse contenue dans le rapport principal (2) ; elles sont réunies dans sept annexes auxquelles il est souvent fait référence dans le rapport principal. Ces annexes, conçues pour servir de référence aux chercheurs spécialisés dans ce domaine, ont été établies à partir de deux types d'éléments de base :

a) les réponses au questionnaire ;
b) les documents de base et les éléments relatifs aux travaux entrepris en matière de construction de modèles mathématiques pour l'enseignement.

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(1) Publié par l'OCDE, Paris, 1973.

(2) Op. cit.

Ces éléments constituent un ensemble unique d'informations dont une étude encore plus approfondie pourrait permettre de mieux comprendre la nature et le rôle des modèles mathématiques destinés au secteur de l'enseignement.

L'enquête est le fruit d'un projet collectif mené par une équipe de chercheurs dirigée par M. Abdul G. Khan en étroite collaboration avec M. Paul M. LeVasseur, co-auteurs du rapport et responsables de la préparation des annexes. Dans le rapport principal, il est fait mention des personnes qui ont contribué à la préparation de différentes phases de l'enquête, qui ont mené cette enquête ou participé à l'analyse des résultats.

COMMENT UTILISER LES ANNEXES

INTRODUCTION

Les annexes ci-après sont conçues dans le but de procurer au lecteur un guide de référence facile à utiliser, lui permettant d'identifier parmi les modèles décrits dans le rapport Les modèles mathématiques du secteur Enseignement ceux qui l'intéressent plus particulièrement. Elles ont pour objet :

1. de donner au lecteur une description complète de tous les sujets traités dans l'enquête ;
2. de pouvoir être utilisées comme instrument de recherche pour identifier les modèles spécifiques offrant un intérêt particulier pour chaque lecteur ;
3. de fournir des informations supplémentaires sur tous les modèles traités dans l'enquête.

Les sept annexes présentent, sous forme de tableaux, une série de données de base concernant les 122 modèles de l'enquête. On trouvera ci-après une brève description du contenu de chaque annexe.

ANNEXE 1 : Classifications par tableaux à double entrée des modèles examinés

L'instrument principal utilisé dans l'enquête est un questionnaire très complet. Un grand nombre des questions posées aux correspondants étaient codées afin de permettre le stockage et le traitement des réponses par ordinateur. L'information était codée pour le traitement par ordinateur (une carte perforée par questionnaire) ; les méthodes de codage utilisées sont brièvement résumées au début de cette annexe. L'information codée a été traitée sur un ordinateur IBM/360 utilisant des programmes écrits spécialement à cet effet. Les résultats de ce traitement apparaissent dans les neuf tableaux de cette annexe. Ces tableaux donnent un résumé quantitatif des caractéristiques des modèles et de leurs rapports mutuels en dénombrant les modèles possédant chacune des caractéristiques.

Le tableau 1 présente un résumé des réponses croisées au questionnaire par pays. Il indique toutes les caractéristiques des modèles ainsi que le nombre de modèles possédant les caractéristiques énumérées pour chaque pays. Les tableaux 2 à 9 établissent les rapports entre les diverses séries de caractéristiques pour tous les modèles, sans tenir compte du pays dans lequel le modèle a été établi. Ces tableaux sont conçus pour indiquer la fréquence à laquelle les modèles traités dans l'enquête présentent les mêmes combinaisons de caractéristiques. Par exemple, on peut voir combien de modèles de prévision utilisent les impressions des experts uniquement comme base d'estimation des paramètres (à partir du tableau 8).

Les classifications primaires utilisées dans les tableaux 2 à 9 concernent les caractéristiques générales du modèle, les caractéristiques du constructeur du modèle, les niveaux d'enseignement traités dans le modèle, la nature des rapports mathématiques, les méthodes utilisées pour l'estimation des paramètres, le type de modèle et les sources d'information.

Dans les exemples ci-après, on verra comment on peut utiliser le tableau 1 de cette annexe comme point de départ pour rechercher les modèles susceptibles de présenter un certain intérêt pour le lecteur. Les tableaux 2 à 9 constituent une série sélectionnée de classifications à double entrée destinées à offrir au lecteur des informations quantitatives supplémentaires quant au nombre de modèles, parmi les 122 examinés, qui ont des caractéristiques communes.

ANNEXE 2 : Caractéristiques des modèles examinés

Les dix huit tableaux figurant dans les parties A et B de cette annexe sont établis à partir d'une classification des modèles par thème. Les neuf catégories de thème utilisées sont regroupées sous trois grandes rubriques : le système éducatif en soi, le système éducatif par rapport aux autres systèmes, les établissements d'enseignement. Les catégories utilisées sont : les modèles globaux d'enseignement, le système de flux des étudiants, les modèles paramétriques pour les étudiants, l'offre et/ou la demande d'enseignants, les ressources physiques et/ou financières, les modèles globaux des rapports de l'enseignement avec l'extérieur, les liens avec le secteur de la main-d'oeuvre, le rendement de l'enseignement et les modèles institutionnels. Ces catégories permettent également de classer les modèles par numéro de série de 1 à 122.

Les neuf tableaux de la partie A de cette annexe décrivent quelques caractéristiques de chacun des modèles, c'est-à-dire des caractéristiques générales fonctionnelles, des caractéristiques analytiques et les caractéristiques du constructeur. Le nom de la personne ayant répondu au questionnaire, le pays dans lequel le modèle a été construit et l'état d'avancement au moment de l'enquête (prévu, en cours ou achevé) sont également indiqués. Enfin, le type d'ordinateur et le langage de programmation utilisés sont mentionnés pour les modèles qui ont été mis sur ordinateur.

Les neuf tableaux de la partie B donnent une tabulation détaillée des caractéristiques fonctionnelles de chaque modèle. Ces tableaux résultent d'une analyse qui a été menée en profondeur sur les rôles du modèle dans chacune des quatre catégories fonctionnelles figurant dans les tableaux de la partie A (description, prévision, élaboration des décisions et simulation). La classification fonctionnelle des modèles est traitée plus en détail dans le rapport de l'enquête.

ANNEXE 3 : Liste des documents

Cette annexe contient une liste de documents ayant trait aux travaux de construction de modèles mentionnés dans l'enquête. Les documents sont groupés en fonction des 9 classifications par thème élaborées à l'Annexe 2 et sont énumérés d'après le numéro de série des modèles. Lorsque, à l'époque, il n'y avait aucun document se rapportant directement à la construction du modèle, le mot "néant" ("none") apparait à côté du code du modèle. Un astérisque à côté du nom d'un auteur indique que ce dernier a répondu au questionnaire et son adresse est donnée dans la liste des correspondants (Annexe 4). Plusieurs documents énumérés n'indiquent pas de nom d'auteur.

ANNEXE 4 : Liste de correspondants

Les personnes ayant répondu au questionnaire sont classées par ordre alphabétique. Leurs adresses ont été enregistrées au moment de l'enquête et quelques-unes ont été mises à jour par la suite grâce aux informations envoyées par les correspondants. Dans la plupart des cas, le correspondant était la personne directement responsable de la construction du modèle. Toutefois, le nom de certaines personnes ayant travaillé sur le modèle n'apparait pas nécessairement dans cette annexe, car elles n'ont pas été interrogées personnellement. L'affiliation du correspondant est également indiquée.

ANNEXE 5 : Questionnaire sur les modèles mathématiques du secteur Enseignement dans les pays Membres de l'OCDE

Cette annexe contient un exemplaire du questionnaire utilisé par les enquêteurs lorsqu'ils ont mené l'enquête. Le questionnaire était conçu pour servir de guide "programmé" suivant une série logique de questions et assurait ainsi l'uniformité de l'analyse des résultats. L'organigramme précédant le questionnaire indique l'ordre des questions. Pour élaborer le questionnaire, on s'est référé à d'autres enquêtes par questionnaire du même type, et on trouvera à la fin de l'annexe une liste des questionnaires consultés.

ANNEXE 6 : Index par titre des modèles

Cette annexe donne la liste des titres de tous les modèles examinés dans l'enquête. Cette liste, d'après le code du modèle, est présentée dans l'ordre alphabétique des pays. Le code du modèle consiste en 2 ou 3 lettres correspondant au nom du pays (AUS - Austrian - Autriche) suivies du numéro du modèle au sein du pays (01, 02, ...). En plus du code du modèle, le numéro de série de chaque modèle est également indiqué.

ANNEXE 7 : Index principal par caractéristiques des modèles examinés

L'annexe 7 constitue l'index principal des modèles examinés et présente sous forme de tableaux toutes les informations recueillies dans les réponses au questionnaire. Elle est établie à partir d'une sortie d'ordinateur complète de toutes les informations codées des 122 questionnaires. Son utilisation est décrite plus en détail ci-après.

POUR UTILISER LES ANNEXES

Les annexes ont été conçues pour satisfaire un certain nombre d'objectifs. Par exemple, un lecteur peut vouloir identifier les modèles qui ont été retenus par l'enquête dans son pays. C'est pour cette raison que, en plus d'un numéro d'identification par série, on a également attribué à chaque modèle un code par pays. Un autre lecteur peut s'intéresser à une série spécifique de modèles tels que les modèles qui s'efforcent de dégager les liens existant entre le secteur de la main-d'oeuvre et celui de l'enseignement. Pour aider ce lecteur à identifier plus rapidement les modèles qui l'intéressent plus précisément, le thème "liens avec le secteur de la main-d'oeuvre" a été défini à partir des modèles recouvrant l'éducation et la main-d'oeuvre. Une troisième personne peut chercher à savoir si des modèles possédant certaines caractéristiques mathématiques apparaissent dans l'enquête. Les annexes lui permettront, par exemple, d'identifier les modèles où figurent des équations non linéaires. Il est donc clair que chaque lecteur peut souhaiter utiliser ces annexes comme un outil de recherche fondamentale et ce, de la façon convenant le mieux à ses intérêts personnels. Etant donné la somme considérable d'éléments contenus dans ces annexes, il serait alors nécessaire d'examiner chaque annexe en détail avant de déterminer quelle est l'information la plus intéressante. Par conséquent, il serait utile de donner quelques directives qui pourront aider l'utilisateur et on trouvera ci-après quelques conseils sur la façon d'utiliser les annexes.

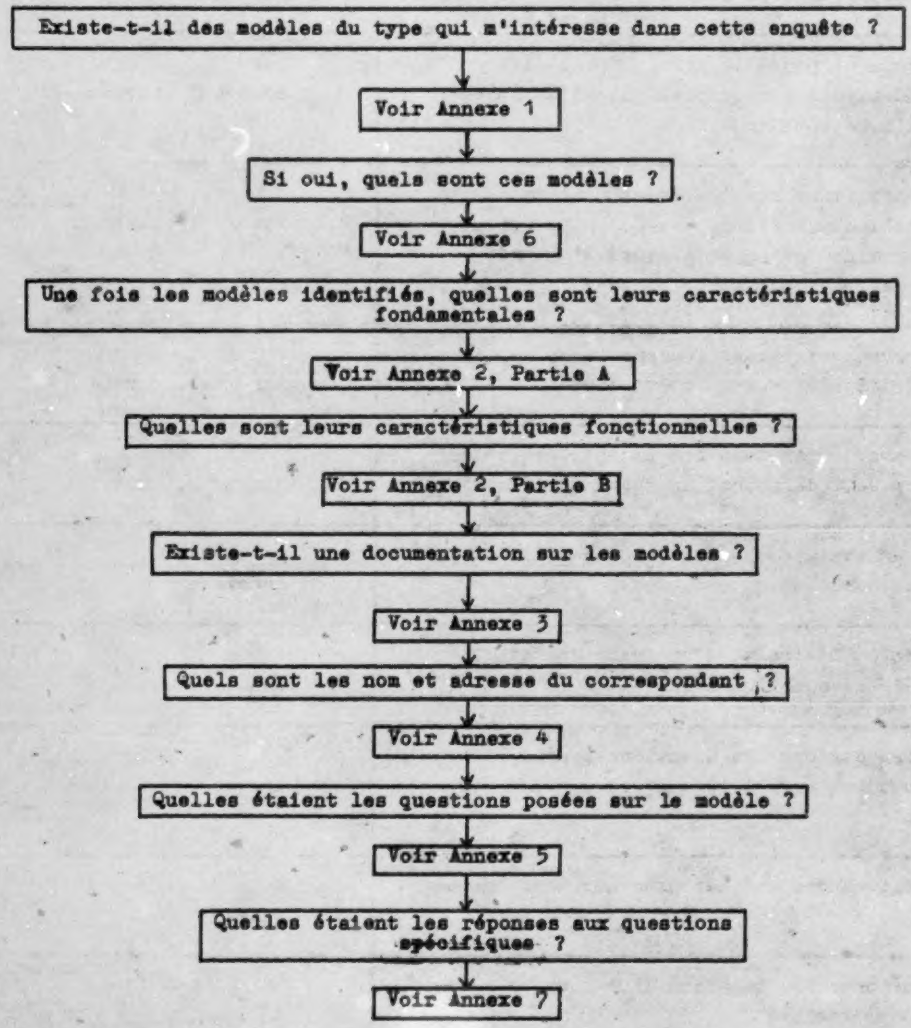
Le tableau ci-contre indique comment une annexe peut répondre à une question précise. Cependant, pour tirer le maximum de profit de ces annexes, il faut tenir compte des rapports qui existent entre elles. Un lecteur peut souhaiter savoir si un type de modèle figure dans l'enquête : le tableau 1 de l'Annexe 1 lui indiquera si un ou plusieurs modèles du type qui l'intéresse ont été examinés et dans quel(s) pays ils ont été construits. Grâce à l'index principal figurant à l'Annexe 7, il lui sera possible d'identifier le titre de chaque modèle susceptible de l'intéresser ainsi que le nom de la personne ayant rempli le questionnaire, de même que les réponses aux questions précises posées au cours de l'entretien. Une fois ces modèles identifiés, on peut utiliser l'Annexe 2 pour obtenir des informations sur les caractéristiques fondamentales et fonctionnelles des modèles. Pour savoir s'il existe une documentation sur ces modèles, il faudra se reporter à l'Annexe 3.

QUELQUES CONSEILS POUR L'UTILISATEUR

Si vous désirez connaitre :	Référez vous à :
Pour chaque pays, le nombre de modèles possédant des caractéristiques d'un intérêt spécifique pour vous	Annexe 1 (tableau 1)
La répartition des 122 modèles classés par tableaux à double entrée en fonction de certaines caractéristiques d'intérêt général	Annexe 1 (tableaux 2 à 9)
Les caractéristiques fondamentales de chaque modèle pour un thème donné	Annexe 2, Partie A
Les caractéristiques fonctionnelles (rôle) de chaque modèle pour un thème donné	Annexe 2, Partie B
S'il existe une documentation pour un modèle donné	Annexe 3
Le nom et l'adresse d'une personne ayant répondu au questionnaire	Annexe 4
Quelles étaient les questions posées et comment les termes techniques avaient été définis	Annexe 5
Les titres des modèles examinés dans chaque pays	Annexe 6
Les réponses au questionnaire pour tous les modèles examinés	Annexe 7

Le nom et l'adresse du correspondant pour chaque modèle se trouvent à l'Annexe 4. Le questionnaire de l'Annexe 5 permettra de savoir quelles étaient exactement les questions posées à propos des caractéristiques des modèles, et on trouvera à l'Annexe 7 une tabulation complète des réponses données à chaque question. L'organigramme ci-dessous indique

COMMENT UTILISER LES ANNEXES ET DANS QUEL ORDRE



Existe-t-il des modèles du type qui m'intéresse dans cette enquête ?

Voir Annexe 1

Si oui, quels sont ces modèles ?

Voir Annexe 6

Une fois les modèles identifiés, quelles sont leurs caractéristiques fondamentales ?

Voir Annexe 2, Partie A

Quelles sont leurs caractéristiques fonctionnelles ?

Voir Annexe 2, Partie B

Existe-t-il une documentation sur les modèles ?

Voir Annexe 3

Quels sont les nom et adresse du correspondant ?

Voir Annexe 4

Quelles étaient les questions posées sur le modèle ?

Voir Annexe 5

Quelles étaient les réponses aux questions spécifiques ?

Voir Annexe 7

Pour illustrer plus clairement cette procédure, prenons deux exemples concrets :

EXEMPLE 1

Il a pour but de montrer que, lors de l'élaboration du questionnaire, on avait prévu la possibilité de recevoir des modèles très variés. C'est pourquoi le niveau de précision qui apparaît dans la classification des modèles du rapport principal figurait déjà dans le questionnaire au départ, permettant à l'enquêteur d'intégrer n'importe quel modèle. Il n'est cependant pas certain que les modèles traitant certaines variables ou utilisant certaines techniques figurent nécessairement dans l'enquête.

Supposons que vous soyez intéressé par des modèles dans lesquels figurent des équations aux différences finies du premier ordre, du second ordre ou d'ordre supérieur, vous devez noter que le tableau 1 de l'Annexe 1 : "Tableau à double entrée des réponses au questionnaire par pays" fournit des indications sur le nombre de modèles possédant certaines caractéristiques dans chaque pays. Un des éléments énumérés concerne différentes équations ; or, on voit immédiatement d'après ce tableau qu'aucun modèle pour lequel des équations aux différences finies du 1er, 2ème ordre et plus étaient définies n'a été trouvé au cours de l'enquête. Cet exemple illustre l'utilisation de l'Annexe 1 dans le but de savoir si les autres annexes contiennent ou non certaines informations sur un type particulier de modèle ; c'est pourquoi il est conseillé de se référer au tableau 1 de l'Annexe 1 pour se faire une idée de la portée et du contenu des annexes.

EXEMPLE 2

Cet exemple indique la façon d'utiliser les annexes et l'ordre à suivre tel que le préconise l'organigramme précédent. Supposons que vous soyez Allemand et que vous vous intéressiez aux modèles allemands de prévision des coûts et dépenses de l'enseignement supérieur.

Etape 1 (Annexe 1)

En vous référant au tableau 1 de l'Annexe 1, en face de "Type of Model" vous trouverez que l'enquête porte sur dix modèles allemands de prévision et que deux de ces modèles possèdent des variables de coûts, de dépenses et de capital. Puisqu'un de ces modèles pourrait être un modèle de prévision pour l'enseignement supérieur, vous devriez alors vous reporter à l'index principal qui figure à l'Annexe 7 pour obtenir un complément d'information.

Etape 2 (Annexe 7)

A l'Annexe 7, les modèles sont énumérés suivant le code de leur pays. Pour l'Allemagne, on trouve quatorze modèles. En vous référant à la colonne "Level of Education"("Niveau d'enseignement"), vous verrez que cinq de ces modèles se rapportent à l'enseignement supérieur. De plus, sous les titres "Expenditure, Capital Stock and Cost Variables" ("Variables de coûts, de dépenses et de capital") et "Type of Model" ("Type de modèle"), vous trouverez qu'un de ces modèles appartient au type que vous cherchez, soit GER 05 (N° de série 51) :"Un modèle de prévision d'étudiants universitaires". Vous remarquerez que le titre seul ne suffit pas pour savoir si le modèle prévoit les coûts et les dépenses et c'est précisément pour combler cette lacune que l'index principal a été rédigé.

Etape 3 (Annexe 2)

Après l'identification du modèle qui vous intéresse, l'Annexe 2 pourra vous fournir de plus amples informations sur certaines caractéristiques fondamentales et fonctionnelles. Dans l'Annexe 2, Partie A, le tableau 5 indique quelques caractéristiques de base du modèle, le premier de la liste. Par exemple, vous pouvez voir que le modèle était terminé au moment de l'enquête, qu'il est numérique et appliqué (caractéristiques analytiques) et qu'il a été construit par une organisation gouvernementale responsable de l'enseignement (caractéristiques de l'auteur). En outre, il a été mis sur ordinateur et des précisions sont également données sur les ordinateurs et le langage de programmation utilisés ("Type of Computer Used").

De même, le tableau 5 de l'Annexe 2, Partie B, indique quelles sont les variables prévues par le modèle. Grâce à ce tableau, vous trouverez que, en plus des coûts et des dépenses, le modèle fait des prévisions sur les effectifs, le nombre de diplômés, les taux de réussite et/ou d'abandon, et les nouveaux entrants. Pour les informations concernant la documentation vous devez alors consulter l'Annexe 3.

Etape 4 (Annexe 3)

Si vous recherchez la documentation concernant le modèle N° 51, on vous indique à l'Annexe 3"voir Allemagne, modèle 4, N° de série 7". En vous reportant au numéro de série 7, vous trouverez les références de six documents en allemand qui vous apportent des informations complémentaires sur ce modèle. Si vous souhaitez prendre directement contact avec la personne ayant répondu au questionnaire, vous devez consulter l'Annexe 4.

Etape 5 (Annexe 4)

Dans l'index principal, le Dr. Roeloffs est indiqué comme ayant répondu au questionnaire. Son adresse se trouve dans la liste alphabétique qui figure à l'Annexe 4.

En plus des informations sur le modèle, que vous aurez recueillies en vous référant aux Annexes 2, 3 et 4, vous trouverez une somme appréciable de renseignements complémentaires dans l'index principal (Annexe 7). Afin de mieux comprendre la nature de l'information rassemblée sous chaque titre de l'Annexe 7, il vous est conseillé de lire le questionnaire complet utilisé par les enquêteurs (Annexe 5). Vous pourrez ensuite consulter l'index principal, pour obtenir davantage d'informations sur les réponses apportées à chaque question.

Ce deuxième exemple a été délibérément très simplifié pour les besoins de l'explication. En réalité, il se pourrait que le lecteur s'intéresse à des modèles construits à la fois dans son pays et à l'étranger. Toutefois, il montre comment ces annexes peuvent être exploitées pour aider les chercheurs à identifier, parmi les 122 modèles examinés, ceux qui les intéressent plus particulièrement et comment ils peuvent se procurer toutes les informations les concernant. Ce volume, complémentaire du rapport de l'enquête, permet de mettre à la disposition des personnes s'intéressant aux modèles mathématiques la totalité des informations dont le Secrétariat disposait pour la préparation du rapport. Nous espérons que ces annexes serviront de guide de référence pour les modèles mathématiques du secteur Enseignement. Ces annexes représentant la totalité des renseignements dont dispose le Secrétariat, les lecteurs désireux d'obtenir davantage de précisions sur un modèle particulier - ou des informations plus récentes sur l'amélioration ultérieure du modèle - devront prendre directement contact avec le correspondant.

ANNEX 1

CROSS-CLASSIFICATIONS OF MODELS SURVEYED

List of Tables

Information Coded from the Questionnaire on Educational Planning Models in OECD Member Countries.

Table 1: Replies to Questionnaire Cross-Classified by Country.

Table 2: General Characteristics of the Model Cross-Classified by Type of Institution Responsible for Constructing the Model.

Table 3: Levels of Education Covered by the Model Cross-Classified by Type of Institution Responsible for Constructing the Model.

Table 4: General Characteristics of the Model Cross-Classified by Levels of Education Covered by the Model.

Table 5: Nature of the Mathematical Relationships Cross-Classified by Levels of Education Covered by the Model.

Table 6: Parameter Estimation Procedures Used Cross-Classified by Levels of Education Covered by the Model.

Table 7: Nature of the Mathematical Relationships Cross-Classified by Type of Model.

Table 8: Parameter Estimation Procedures Used Cross-Classified by Type of Model.

Table 9: Parameter Estimation Procedures Used Cross-Classified by Sources of Information.

INFORMATION CODED FROM THE QUESTIONNAIRE ON EDUCATIONAL PLANNING MODELS IN OECD MEMBER COUNTRIES

QUESTION NUMBER	COLUMN(S)	INFORMATION CODED	CODING PROCEDURE
-	1	Name of Interviewer	One-digit code (1 through 7) for each of 7 possible interviewers
-	2 - 3	Country Designation	Two-digit code (01 through 24) for each of 24 possible countries
-	4 - 5	Questionnaire Number within Country	Two-digit ascending code: 01, 02, 03, .. etc.
2	6	Institutional Categorisation of the Respondent	One-digit code (1 through 7) for each of 7 possible institutional types
3	7	Information on Related and Unrelated Models	1 = Yes, related; 2 = Yes, unrelated; 3 = Yes, both related and unrelated; 0 = No (i.e. one model only)
4	8	Status of Work on the Model	1 = finished; 2 = In Progress; 3 = Planned, but not yet started
5	9	Availability of Model Documentation	One-digit code (1 through 8 for each of 8 possible replies
6	10	Relationship of the Model to Other Systems	1 = Represented by itself 2 = Related to another system(s)
7	11 - 13	Scope of the Model	100 = Whole Educational system; 2 — (3 digits, last two of which describe the parts - level and type - of the system covered)
8	14	Nature of the model	1 = theoretical; 2 = Numerical and experimental; 3 = numerical and applied
9	15	Student Variables	0 = None; 1 = Student stocks; 2 = Student flows; 3 = Student stocks and flows
10	16	Teacher variables	0 = None; 1 = Teacher stocks; 2 = Teacher flows; 3 = Teacher stocks and flows
11	17	Expenditure, Capital Stock and Cost Variables	One-digit code (0 through 7) for each of 8 possible replies
13	18	Type of model	1 = Descriptive; 2 = Forecasting; 3 = Decision; 4 = Simulation with stochastic elements; 5 = Simulation without stochastic elements
14	19	Time Horizon of the Model	0 = Time-independant; 1 = Short-term; 2 = Medium-term; 3 = Long-term
15	20	Relationship of Variables Determined and Time-Units	One-digit code (0 through 7) for each of 8 possible replies
17	21	Sources of Data	One-digit code (0 through 8) for each of 9 possible replies
18	22 - 23	Types of Equations	Col.22: 1=Behavioural, 2=Technological, 3=Both, 4=Neither Col.23: 1=Legal-Institutional, 2=Definitional, 3=Both, 4=Neither
18	24 - 27	Total Number of Equations	Total number entered; right-adjusted with leading zeroes punched
19a	28	Equalities and Inequalities	1=Equalities only, 2=Inequalities only, 3=Both equalities and Inequalities
19b	29	Deterministic and Stochastic Equations	1=Deterministic only, 2=Stochastic only, 3=Both deterministic and stochastic
19c	30	Time-lagged Equations	One-digit code (1 through 7) for each of 7 possible replies
19d	31	Linear and Non-Linear Equations	1=Linear only, 2=Non-Linear only, 3=Both Linear and Non-Linear
19e	32	Difference equations	One digit code (1 through 7) for each of 7 possible replies
19f	33	Continuous and Discrete Equations	1=Continuous only, 2=Discrete only, 3=Both continuous and discrete
20	34	Existence of a Preference Function	0=No, 1=Yes - Programming Model, 2=Yes - Not a Programming Model
21	35	Nature of Linear Relationships	1=Independent, 2=Recursive, 3=Simultaneous, 4=Block-recursive, 5=Other
30	36	Computer Usage	0 = No, 1 = Yes

INFORMATION CODED FROM THE QUESTIONNAIRE ON EDUCATIONAL PLANNING MODELS IN OECD MEMBER COUNTRIES (cont.)

QUESTION NUMBER	COLUMN(S)	INFORMATION CODED	CODING PROCEDURE
31	37	Are Parameters Estimated?	0 = No, 1 = Yes
32	38 - 39	Basis of Parameter Estimation	Col.38: 1-digit code (0 through 7) for each of 8 possible replies; Col.39: 1=Other methods; Cols.38-39: 00= Does not apply
33	40	Data for Econometric/Statistical Analysis	1=Time-series, 2=Cross-sectional, 3=Both time-series and cross-sectional; 0 = Does not apply
34	41 - 42	Econometric/Statistical Techniques	Col.41: 1-digit code (0 through 7) for each of 8 possible replies; Col.42: 1=other methods; Cols.41-42: 00= Does not apply
35	43	Subjective Alteration of Parameters	0 = No, 1 = Yes, 2 = Does not apply
36	44	Changes of Parameters over time	0 = No, 1 = Yes, 2 = Does not apply
37	45	Sensitivity Analysis	0 = No sensitivity analysis, 1 = Sensitivity analysis attempted
39	46	Special Features	0 = No, 1 = Yes
40	47	Construction by or for a Government Agency	0 = No, 1 = Yes
41	48	Official Acceptance of Results	0 = No, 1 = Yes, 2 = Does not apply
43	49	Validity Tests	0 = No, 1 = Yes
46	50 - 52	Tasks of the Unit: Information Collection, Processing and Analysis Policy Other Tasks	Col.50: 1-digit code (0 through 7); Col.51: 1-digit code (0 through 7) for each of 64 possible replies; Col.52: 1 = Other tasks specified
48	53	Are there Joint Projects?	0 = No, 1 = Yes
49	54 - 55	With which Organisations?	Col 54: 1-digit code (0 through 7); Col.55: 1-digit code (0 through 7) for each of 64 possible replies
50	56	Joint Project Directors	0 = No, 1 = Yes, 2 = Does not apply
53	57 - 58	Sources of Finance	Col.57: *1-digit code (0 through 7); Col.58: 1-digit code (0 through 7) for each of 64 possible replies
54	59	Finance Restrictions	0 = No, 1 = Yes, 2 = Does not apply
55	60	Influence of Financing Bodies	0 = No, 1 = Yes, 2 = Does not apply
57	61 - 62	Model Project Staff	Cols. 61-62 contain total full-time equivalent working on model project (Right-adjusted with leading zeroes punched)
58	63	Multiple Projects	0 = No, 1 = Yes
59	64	Field Investigation	0 = No, 1 = Yes-this unit, 2 = Yes-others
61	65	Completion of Model Project	0 = No, 1 = Yes, 2 = Not applicable
64	66	Is training conducted?	0 = No, 1 = Yes
65	67	Formal and Informal Training	1=Formal only, 2=Informal only, 3=Both formal and informal, 0=Does not apply
67	68	Compulsory and Optional Training	1 = Compulsory only, 2 = Optional only, 3 = Both compulsory and optional, 0 = Does not apply

TABLE 1. REPLIES TO QUESTIONNAIRE CROSS-CLASSIFIED BY COUNTRY

CHARACTERISTICS		GERMANY	AUSTRIA	BELGIUM	CANADA	DENMARK	SPAIN	UNITED STATES	FRANCE	GREECE	IRELAND	ICELAND	ITALY	LUXEMBOURG	NORWAY	NETHERLANDS	PORTUGAL	UNITED KINGDOM	SWEDEN	SWITZERLAND	TURKEY	JAPAN	FINLAND	YUGOSLAVIA	INTERNATIONAL ORG.	TOTAL
	TOTAL NUMBER OF MODELS	14	2	7	14	1	0	14	8	0	7	1	3	0	11	6	1	15	1	2	2	8	0	1	4	[illegible]
Type of Institution Responsible for constructing the model	Gov't. Org. responsible for education	8	0	4	1	0	0	3	1	0	4	0	0	0	5	0	1	8	0	2	1	1	0	1	0	40
	National Statistical Office	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
	Other Government Offices	0	0	0	4	0	0	1	4	0	1	1	0	0	3	4	0	0	0	0	0	5	0	0	0	23
	University	1	2	2	7	1	0	5	2	0	2	0	2	0	3	2	0	5	0	0	0	2	0	0	0	36
	Other non-governmental Organisation	5	0	1	1	0	0	5	1	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	16
	International Organisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
	Individual	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Status of Work	Finished	7	0	5	5	1	0	5	5	0	1	1	2	0	10	3	1	7	1	0	2	5	0	1	3	65
	In Progress	7	2	2	7	0	0	8	2	0	6	0	0	0	1	3	0	8	0	2	0	3	0	0	1	52
	Planned	0	0	0	2	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Relationship to Other Systems	Presented by Itself	5	1	4	6	1	0	6	2	0	7	1	2	0	9	4	0	4	1	1	1	0	0	0	1	56
	Related to another System	9	1	3	8	0	0	8	5	0	0	0	1	0	2	2	1	11	0	1	1	8	0	1	3	65
	No Information Available	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Scope of the Model	The Whole Educational System	3	2	0	3	0	0	3	1	0	2	0	0	0	2	3	1	2	0	1	1	0	0	1	4	29
	Parts of the Educational System	11	0	7	11	1	0	11	7	0	5	1	3	0	9	3	0	13	1	1	1	8	0	0	0	93
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nature of the Model	Theoretical	1	2	0	1	0	0	0	0	0	1	0	1	0	1	2	0	0	0	1	1	0	0	0	1	12
	Numerical and Experimental	3	0	0	4	0	0	2	0	0	0	0	2	0	0	0	1	0	0	1	0	4	0	0	1	18
	Numerical and Applied	10	0	7	9	1	0	12	8	0	6	1	0	0	10	4	0	15	1	0	1	4	0	1	2	92
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student Variables	Student Stocks	3	0	4	3	1	0	3	3	0	5	0	1	0	4	1	0	4	0	1	1	1	0	0	0	35
	Student Flows	0	1	0	1	0	0	4	1	0	0	0	0	0	1	0	0	2	0	0	0	3	0	0	0	13
	Both Student Stocks and Flows	10	1	3	8	0	0	7	4	0	2	1	0	0	5	4	1	7	1	1	1	3	0	1	3	63
	Neither Student Stocks and Flows	1	0	0	2	0	0	0	0	0	0	0	2	0	1	1	0	2	0	0	0	1	0	0	1	11
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teacher Variables	Teacher Stocks	5	0	0	4	1	0	4	1	0	2	0	0	0	6	1	1	4	0	0	1	1	0	0	0	31
	Teacher Flows	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
	Both Teacher Stocks and Flows	3	0	0	5	0	0	5	2	0	0	0	1	0	1	3	0	2	0	2	1	1	0	1	3	30
	Neither Teacher Stocks nor Flows	6	2	7	5	0	0	5	5	0	5	1	2	0	4	2	0	7	1	0	0	6	0	0	1	59
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Expenditure, Capital stock and Cost Variables	Expenditures	0	0	0	1	0	0	3	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	1	9
	Capital Stocks	2	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	8
	Costs	0	1	0	0	0	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	Expenditures and Capital Stocks	0	0	0	1	0	0	2	2	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	8
	Expenditures and Costs	0	0	0	1	0	0	1	1	0	0	0	0	0	1	1	0	3	0	0	1	0	0	0	0	9
	Capital Stocks and Costs	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
	Expenditures, Capital and Costs	2	0	0	6	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13
	None of the Variables	10	1	6	5	0	0	2	2	0	6	1	2	0	6	5	0	9	1	2	1	6	0	1	1	67
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Type of Model	Descriptive Model	1	1	1	1	0	0	7	3	0	1	0	0	0	3	1	0	3	0	0	1	2	0	0	1	26
	Forecasting Model	10	0	4	5	0	0	3	2	0	3	1	1	0	7	4	0	10	1	1	1	5	0	0	0	58
	Decision Model	3	1	1	5	0	0	3	3	0	2	0	2	0	1	0	0	1	0	0	0	0	0	1	1	24
	Simulation Model with Stochastic Elements	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
	Simulation Model without Stochastic Elements	0	0	1	3	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	1	0	0	2	11
	No Information Available	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Horizon	Short-Term	2	0	1	3	0	0	6	1	0	1	0	0	0	2	1	0	3	0	0	0	0	0	0	0	20
	Medium-Term	5	0	1	1	0	0	0	3	0	3	0	0	0	0	0	0	3	0	2	0	5	0	1	1	25
	Long-Term	6	0	3	4	0	0	5	2	0	3	1	1	0	6	4	1	7	0	0	1	1	0	0	2	46
	Time-Independent	1	1	2	6	1	0	3	2	0	0	0	2	0	3	1	0	2	1	0	1	2	0	0	1	28
	No Information Available	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Sources of Data	Population Census	1	1	0	1	0	0	0	0	0	2	0	0	0	2	0	0	1	0	0	1	0	0	0	0	9
	Other Regular Surveys	2	0	2	1	0	0	1	0	0	5	0	0	0	3	0	0	3	0	0	0	3	0	0	0	20
	Special Surveys	0	0	2	3	1	0	4	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	13
	Pop. Census and Other Regular Surveys	4	0	0	3	1	0	0	3	0	0	0	0	0	2	0	0	1	2	0	1	2	0	0	0	20
	Pop. Census and Special Surveys	1	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	8
	Other Regular and Special Surveys	4	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	4	1	0	0	0	0	1	0	13
	Census, Other Regular and Special Surveys	2	0	0	0	0	0	2	3	0	0	0	0	0	0	2	1	3	0	0	1	2	0	0	1	17
	Other Sources	0	0	0	0	0	0	0	1	0	1	1	1	0	2	2	0	1	0	0	0	0	0	0	0	13
	No Information Available	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4
Deterministic and Stochastic Equations	Deterministic Only	13	2	5	12	0	0	3	5	0	6	1	2	0	10	5	1	8	1	2	2	6	0	1	2	82
	Stochastic Only	0	0	1	1	0	0	10	2	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	1	19
	Both Deterministic and Stochastic	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	1	8
	No Information Available	0	0	0	1	0	0	0	1	0	1	0	1	0	1	1	0	1	0	0	0	0	0	0	0	8
Linear and non-linear equations	Linear Only	14	2	5	10	1	0	5	7	0	5	1	2	0	8	5	1	8	1	2	1	5	0	1	1	84
	Non-linear Only	0	0	0	0	0	0	3	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
	Both Linear and Non-linear	0	0	2	3	0	0	4	1	0	1	0	1	0	1	0	0	5	0	0	1	3	0	0	3	24
	No Information Available	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0	2	0	0	0	0	0	0	0	8

TABLE 1. REPLIES TO QUESTIONNAIRE CROSS-CLASSIFIED BY COUNTRY (Cont.)

CHARACTERISTICS		COUNTRY																							
		GERMANY	AUSTRIA	BELGIUM	CANADA	DENMARK	SPAIN	UNITED STATES	FRANCE	GREECE	IRELAND	ICELAND	ITALY	LUXEMBOURG	NORWAY	NETHERLANDS	PORTUGAL	UNITED KINGDOM	SWEDEN	SWITZERLAND	TURKEY	JAPAN	FINLAND	YUGOSLAVIA	INTERNATIONAL ORG	TOTAL
Difference Equations	No differences Only	12	2	0	7	1	0	7	7	0	0	1	0	0	0	3	0	0	1	2	1	5	0	0	3	53
	First Order Differences only	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	4
	Second or Higher Order Differences Only	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	No Differences and First Order Differences	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	3	0	0	0	2	0	0	1	10
	No Differences and Higher Order Differences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	First and Higher Order Differences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	No Differences, First and Higher Order Differences	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
	No Information Available	1	1	1	1	0	0	1	0	0	1	0	1	0	1	1	0	1	0	1	0	1	0	1	0	13
Existence of a Preference Function	No	11	0	1	0	1	0	0	7	0	0	1	1	0	0	0	1	13	1	1	1	7	0	0	4	[illegible]
	Yes and Programming Model	1	1	1	5	0	0	3	1	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	16
	Yes but not a Programming Model	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	No Information Available	0	0	0	1	0	0	0	0	0	1	0	2	0	1	1	0	0	0	0	0	0	0	1	0	7
Nature of Linear Relationships	Independent Equations	5	0	5	10	0	0	11	7	0	0	0	2	0	3	0	0	7	0	1	1	1	0	0	2	[illegible]
	Recursive Equations	2	0	2	3	1	0	3	0	0	0	1	0	0	2	1	0	0	1	1	0	1	0	0	0	20
	Simultaneous Equations	18	0	1	0	0	1	12	0	0	3	1	1	0	12	0	1	17	1	1	1	1	0	0	3	[illegible]
	Block-Recursive Equations	1	0	0	1	0	0	0	0	0	1	0	2	0	1	3	1	2	0	1	0	1	0	1	1	[illegible]
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Not Applicable	1	0	1	5	0	0	2	1	0	1	0	0	0	1	2	0	0	0	0	0	2	0	0	0	17
	No Information Available	0	0	0	1	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	1	0	8
Computer Usage	No	13	0	7	11	1	0	0	0	0	1	1	1	0	11	0	0	0	1	2	1	7	0	0	3	[illegible]
	Yes	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	4
	No Information Available	0	0	1	0	1	0	0	1	0	1	1	1	0	0	5	1	0	1	1	0	5	0	1	2	36
Parameter Estimation	Yes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	67
	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	No Information Available	0	0	0	1	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	5
Bases of Parameter Estimation	Tabulation of Data	1	0	1	1	1	0	1	1	0	0	1	1	0	3	1	0	1	0	1	1	3	0	0	0	26
	Impressions of Experts	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	5
	Econometric/Statistical Analysis	1	0	2	1	0	0	7	1	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	1	17
	Data Tabulation and Expert Impressions	2	0	0	1	0	0	3	3	0	0	0	0	0	2	0	0	3	0	0	0	0	0	0	0	14
	Data Tabulation and Econ./Stat. Analysis	1	0	2	1	0	0	0	1	0	1	0	0	0	1	0	0	5	0	0	0	1	0	0	0	15
	Expert Impressions and Econ./Stat. Analysis	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
	Data Tab., Expert Imp. and Econ./Stat. Analysis	0	0	2	4	1	0	2	2	0	1	0	1	0	1	0	1	2	1	0	0	0	1	0	2	26
	Not Applicable	0	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	0	1	9
	Other Methods	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	3
	No Information Available	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
Econometric/Statistical Techniques	Simple Regression	3	0	3	1	0	0	0	1	0	1	0	0	0	0	0	1	3	1	0	0	1	0	0	1	16
	Multiple Regression	1	0	0	3	0	0	1	0	0	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	10
	Other Multivariate Techniques	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Simple and Multiple Regressions	0	0	1	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	15
	Simple Reg. and Other Multivariate Tech.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mult. Reg. and Other Multivariate Tech.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6
	Simple, Mult. Reg. and Other Multivar. Tech.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2	0	0	0	0	0	0	0	8
	No Econometric/Statistical Analysis	0	0	2	4	2	0	5	4	0	0	1	2	0	0	1	0	0	0	2	2	2	0	0	1	56
	None of the Above Techniques	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other Methods	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	5
	No Information Available	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
Data for Econometric/Statistical Analysis	Time-series Data Only	0	0	3	1	0	0	1	1	0	1	0	0	0	1	0	0	3	1	0	0	1	0	0	1	18
	Cross-sectional Data Only	1	0	0	1	0	0	7	3	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	16
	Both Time-series and cross-sectional Data	3	0	1	4	0	0	1	1	0	0	0	0	0	1	3	1	1	1	0	0	4	0	0	1	24
	No Information Available	0	0	0	1	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	1	0	7
Changes of Parameters over time	Yes	11	0	1	1	1	0	1	1	0	1	0	1	0	3	0	0	1	1	2	2	2	0	1	1	57
	No	3	0	5	0	1	0	0	2	0	0	1	3	0	5	3	1	5	0	1	1	5	0	0	1	38
	No Information Available	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7
Sensitivity Analysis	Description is Given	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31
	No Description is Given	0	0	3	0	0	0	10	0	0	1	0	3	0	3	4	0	7	0	2	2	0	0	1	0	[illegible]
	No Information is Available	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5
Validity Tests	Yes	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	7	[illegible]	0	0	1	0	0	1	52
	No	[illegible]	[illegible]	3	14	0	0	0	3	0	3	0	3	0	5	2	[illegible]	8	0	2	2	4	[illegible]	1	3	63
	No Information is Available	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7
Sources of Finance	Government	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Universities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	4
	Independent Research Institutes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Government and Universities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	12
	Government and Independent Res. Institutes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	Universities and Independent Res. Institutes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Gov., Univ. and Independent Res. Institutes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	None of the Above	0	0	0	0	0	0	7	3	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	2	50

TABLE 2. GENERAL CHARACTERISTICS OF THE MODEL CROSS-CLASSIFIED BY TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTING THE MODEL

Type of Institution Responsible for Constructing the Model	Total Number of Models	Nature of the Model			Type of Model					Sources of Data									Status of Work at the time of the Survey			Official Acceptance of the Model				
		Theoretical	Numerical and Experimental	Numerical and Applied	Descriptive Model	Forecasting Model	Decision Model	Simulation Model without Stochastic Elements	Simulation Model with Stochastic Elements	Population Census Only	Other Regular Surveys	Special Surveys Only	Population Census and other Regular Surveys	Population Census and Special Surveys	Other Regular Surveys and Special Surveys	Population Census, other Regular Surveys and Special Surveys	Other Sources	Number of Models for which Information is not available	Finished	In Progress	Planned	Models constructed by or for a Government Agency for which Information is available	Finished models for which results have been officially accepted	Finished models for which results have not been officially accepted	Models in Progress for which intermediate results have been officially accepted	Models planned or in progress for which final acceptance cannot yet be determined
Principal Government Organisation Responsible for Education	40	2	7	31	4	24	6	1	5	1	11	2	8	1	7	6	2	2	26	14	0	38	20	4	6	8
National Statistics Office	2	0	0	2	0	2	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	2	1	1	0	0
Other Government Office	23	1	3	19	2	18	2	0	1	2	2	1	5	1	1	6	4	1	14	8	1	19	7	5	2	5
University	36	6	6	24	13	7	11	2	3	4	5	10	2	1	1	3	6	4	13	20	3	14	2	2	3	7
Other Non-governmental Organisation	16	1	1	14	5	7	4	0	0	1	2	0	5	3	3	1	1	0	6	9	1	8	3	1	2	2
International Organisation	4	1	1	2	1	0	1	0	2	0	0	0	0	2	0	1	0	1	3	1	0	1	1	0	0	0
Individual	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0
Total	122	12	18	92	26	58	24	3	11	9	20	13	20	8	13	17	13	9	65	52	5	83	34	14	13	22

TABLE 5. LEVELS OF EDUCATION COVERED BY THE MODEL CROSS-CLASSIFIED BY TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTING THE MODEL

Type of Institution Responsible for Constructing the Model	LEVELS OF EDUCATION COVERED BY THE MODEL										Total
	Primary Only	Lower Secondary Only	Upper Secondary Only	Higher Education Only	Primary and Lower Secondary	Primary, Lower and Upper Secondary	Lower and Upper Secondary	Lower and Upper Secondary and Higher Education	Upper Secondary and Higher Education	All Educational Levels	
Principal Government Organisation Responsible for Education	1	0	1	12	1	10	6	0	0	9	40
National Statistical Office	0	0	0	1	0	0	0	0	0	1	2
Other Government Office	0	1	1	4	0	4	0	3	1	9	23
University	0	0	2	17	1	4	0	1	2	9	36
Other Non-governmental Organisation	0	1	1	8	0	2	1	0	1	2	16
International Organisation	0	0	0	0	0	0	0	0	0	4	4
Individual	0	0	0	1	0	0	0	0	0	0	1
Total	1	2	5	43	2	20	7	4	4	34	122

TABLE 4. GENERAL CHARACTERISTICS OF THE MODEL CROSS-CLASSIFIED BY LEVELS OF EDUCATION COVERED BY THE MODEL

Levels of Education Covered by the Model	Total Number of Models	Nature of the Model			Type of Model					Sources of Data									Status of Work at the time of the Survey			Official Acceptance of Model Results				
		Theoretical	Numerical and Experimental	Numerical and Applied	Descriptive Model	Forecasting Model	Decision Model	Simulation Model without Stochastic Elements	Simulation Model with Stochastic Elements	Population Census Only	Other Regular Surveys	Special Surveys Only	Population Census and other Regular Surveys	Population Census and Special Surveys	Other Regular Surveys and Special Surveys	Population Census, Other Regular Surveys and Special Surveys	Other Sources	Number of Models for which Information is not available	Finished	In Progress	Planned	Models constructed by or for a government agency for which information is available	Finished models for which results have been officially accepted	Finished models for which results have not been officially accepted	Models in progress for which intermediate results have been officially accepted	Models planned or in progress for which final acceptance cannot yet be determined
Primary Only	1	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	0	0	0
Lower Secondary Only	2	0	0	2	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0	1	0	0	1	0
Upper Secondary Only	5	0	0	5	2	3	0	0	0	1	1	1	0	0	0	2	0	0	3	2	0	5	2	1	1	1
Higher Education Only	43	4	7	32	13	15	10	1	4	1	7	8	5	0	5	4	10	3	23	18	2	24	11	4	4	5
Primary and Lower Secondary	2	0	0	2	0	1	0	1	0	0	0	1	0	0	1	0	0	0	1	1	0	2	1	0	0	1
Primary, Lower and Upper Secondary	20	2	3	15	1	12	6	0	1	1	5	2	4	1	2	0	2	3	13	5	2	117	9	2	2	4
Lower and Upper Secondary	7	1	0	6	1	2	2	0	2	0	2	0	2	1	1	1	0	0	2	5	0	6	2	0	2	2
Lower and Upper Secondary and Higher Education	4	0	1	3	0	3	1	0	0	0	2	0	1	0	0	1	0	0	4	0	0	3	1	2	0	0
Upper Secondary and Higher Education	4	0	0	4	4	0	0	0	0	0	1	1	1	0	0	1	0	0	1	2	1	1	0	0	0	1
All Educational Levels	34	5	7	22	4	20	5	1	4	6	2	0	5	5	4	8	1	3	17	17	0	223	7	5	3	8
Total	122	12	18	92	26	58	24	3	11	9	20	15	20	8	13	17	13	9	65	52	5	83	34	14	13	22

TABLE 5. NATURE OF THE MATHEMATICAL RELATIONSHIPS CROSS-CLASSIFIED BY LEVELS OF EDUCATION COVERED BY THE MODEL

Levels of Education Covered by the Model	Total Number of Models	Types of Equations included in the Models														Linear and Non-Linear Equations				Total Number of Models which include Linear Equations	Nature of Linear Relationship					Number of Pro-gramming Models	Number of Non-Pro-gramming Models with a Preference Function
		One Type Only				Two Different Types Included				Three Different Types Included																	
		Behavioural only	Technological only	Legal-Institutional only	Definitional only	Both Behavioural and Definitional	Both Technological and Legal-Institutional	Both Technological and Definitional	Both Legal-Institutional and Definitional	Behavioural, Technological and Legal-Institutional	Behavioural, Technological and Definitional	Behavioural, Legal-Institutional and Definitional	Technological, Legal-Institutional and Definitional	All four types of equations included	Number of models for which information is not available	Linear Equations only	Non-Linear Equations only	Both Linear and Non-Linear Equations	Number of Models for which information is not available		Independent Equations	Recursive Equations	Simultaneous Equations	Bloch-recursive Equations	Number of Models for which information is not available		
Primary Only	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0	0	0
Lower Secondary Only	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0
Upper Secondary Only	5	0	0	0	0	2	0	0	0	0	0	2	0	1	0	3	1	1	0	4	1	0	0	2	1	1	0
Higher Education Only	43	7	1	1	6	6	0	3	4	0	1	1	4	4	5	28	2	10	3	38	19	5	8	1	5	8	2
Primary and Lower Secondary	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	1	0	0	0	0	0
Primary, Lower and Upper Secondary	20	3	0	0	5	3	0	1	0	1	1	1	0	2	3	15	1	1	3	16	7	5	3	1	0	1	1
Lower and Upper Secondary	7	0	0	0	0	3	1	1	0	0	0	0	0	2	0	5	0	2	0	7	5	1	0	0	1	1	0
Lower and Upper Secondary and Higher Education	4	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	0	0	0	4	0	3	0	0	1	1	0
Upper Secondary and Higher Education	4	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	4	0	4	3	1	0	0	0	0	0
All Educational Levels	34	0	2	0	8	7	0	2	1	0	2	3	2	4	3	24	1	6	3	30	12	4	7	5	2	4	3
Total	122	13	3	1	21	23	1	9	5	1	4	7	7	14	13	84	5	24	9	108	49	20	19	9	11	16	3

TABLE 5.(cont.) NATURE OF THE MATHEMATICAL RELATIONSHIPS CROSS-CLASSIFIED BY LEVELS OF EDUCATION COVERED BY THE MODEL

Levels of Education Covered by the Model	Total Number of Models	Equalities and Inequalities				Existence of Time-Lagged Equations								Deterministic and Stochastic Equations				Existence of Difference Equations					Continuous and Discrete Equations			
		Equalities Only	Inequalities only	Both Equalities and Inequalities	Number of Models for which Information is not available	Instantaneous Equations only	Lagged first order Equations only	Lagged higher order Equations only	Both instantaneous and Lagged first order equations	Both Instantaneous and Lagged higher order equations	Both Lagged first order and Lagged higher order equations	Instantaneous, Lagged first order and Lagged higher order equations	Number of models for which Information is not available	Deterministic only	Stochastic only	Both Deterministic and Stochastic	Number of models for which Information is not available	No difference equation	First order difference equations only	Equations both without differences and with first order differences	Equations without differences, with first order differences and with higher order differences	Number of models for which Information is not available	Continuous equations only	Discrete equations only	Both continuous and discrete equations	Number of models for which Information is not available
Primary Only	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0
Lower Secondary Only	2	2	0	0	0	2	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2	0	0
Upper Secondary Only	5	3	0	2	0	2	0	0	1	0	0	2	0	3	1	1	0	5	0	0	0	0	0	5	0	0
Higher Education Only	43	31	1	8	3	15	2	1	9	3	1	6	6	27	9	1	6	26	1	7	1	8	4	29	2	8
Primary and Lower Secondary	2	2	0	0	0	1	0	0	1	0	0	0	0	1	0	1	0	2	0	0	0	0	0	2	0	0
Primary, Lower and Upper Secondary	20	16	0	1	3	3	4	0	6	0	1	3	3	12	3	1	4	13	0	3	1	3	2	15	0	3
Lower and Upper Secondary	7	5	0	2	0	2	1	0	2	1	0	0	1	6	1	0	0	6	0	0	0	1	0	7	0	0
Lower and Upper Secondary and Higher Education	4	3	0	1	0	0	0	0	4	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4	0	0
Upper Secondary and Higher Education	4	2	0	1	1	2	0	0	2	0	0	0	0	2	1	1	0	3	0	0	0	1	1	2	0	1
All Educational Levels	34	24	0	6	4	4	8	0	9	1	1	7	4	25	3	3	3	21	3	4	0	6	4	26	1	3
Total	122	89	1	21	11	32	15	1	34	5	3	18	14	82	19	8	13	83	4	14	2	19	11	93	3	15

TABLE 6. PARAMETER ESTIMATION PROCEDURES USED CROSS-CLASSIFIED BY LEVELS OF EDUCATION COVERED BY THE MODEL

Levels of Education Covered by the Model	Number of Models for which Parameters were Estimated	Bases for Parameter Estimation								Number of Models which use Econometric/Statistical Analysis for Parameter Estimation	Data for Econometric/Statistical Analysis				Techniques used for Econometric/Statistical Analysis							Number of Models for which Parameters have been Altered Subjectively	Number of Models for which Attempts have been made to Measure Changes over time	Number of Models for which Parameters were not Estimated or for which Insufficient information is available
		Tabulation of Data only	Impressions of Experts Only	Econometric/Statistical Analysis	Data Tabulation and Impressions of Experts	Data Tabulation and Econ./Stat. Analysis	Impressions of Experts and Econ./Stat. Analysis	Data Tabulation, Impressions of Experts and Econ./Stat. Analysis	Other Methods		Time-Series Data only	Cross-sectional Data only	Both time-series and cross-sectional data	Information not available	Simple Regression only	Multiple Regression only	Both Simple and Multiple Regression	Other Multivariate Techniques Only	Multiple Regression and Other Multivariate Techniques	Simple and Multiple Regression and other Multivariate Techniques	Other Methods			
Primary Only	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Lower Secondary Only	2	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Upper Secondary Only	5	0	0	1	0	3	0	1	0	5	1	2	2	0	1	3	0	0	0	1	0	3	2	0
Higher Education Only	30	7	3	9	3	4	0	11	1	24	6	7	10	1	6	3	6	0	4	3	2	19	20	5
Primary and Lower Secondary	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Primary, Lower and Higher Secondary	16	4	0	2	4	2	0	3	1	7	3	2	2	0	3	1	0	1	1	0	1	9	7	4
Lower and Upper Secondary	7	3	0	0	1	1	0	2	0	3	2	0	0	1	0	0	2	1	0	0	0	2	3	0
Lower and Upper Secondary and Higher Education	4	0	0	0	1	1	1	1	0	3	0	1	2	0	1	0	0	0	0	1	1	2	3	0
Upper Secondary and Higher Education	4	1	0	1	1	0	0	1	0	2	0	1	1	0	0	0	0	1	0	1	0	2	3	0
All Educational Levels	28	8	1	3	4	3	3	7	0	16	6	2	7	1	5	3	5	0	0	2	1	15	18	6
Total	107	25	5	17	15	14	4	26	2	61	18	16	24	3	16	10	13	3	6	8	5	54	57	15

TABLE 7. NATURE OF MATHEMATICAL RELATIONSHIPS CROSS-CLASSIFIED BY TYPE OF MODEL

Type of Model	Total Number of Models	Equalities and Inequalities				Existence of Time-Lagged Equations								Deterministic and Stochastic Equations				Existence of Difference Equations					Continuous and Discrete Equations			
		Equalities Only	Inequalities Only	Both equalities and inequalities	Number of models for which information is not available	Instantaneous Equations Only	Lagged first order equations only	Lagged higher order equations only	Both instantaneous and lagged first order equations	Both instantaneous and lagged higher order equations	Both lagged first order and lagged higher order equations	Instantaneous, lagged first order and lagged higher order equations	Number of models for which information is not available	Deterministic only	Stochastic only	Both deterministic and stochastic	Number of models for which information is not available	No difference equations	First order difference equations only	Equations both without differences and with first order differences	Equations without differences, with first order differences and with higher order differences	Number of models for which information is not available	Continuous equations only	Discrete equations only	Both continuous and discrete equations	Number of models for which information is not available
Descriptive Models	26	19	0	5	2	12	2	1	3	1	0	3	4	12	9	3	2	18	0	2	1	5	3	17	2	4
Forecasting Models	58	52	0	3	3	9	11	0	20	3	3	8	4	44	7	3	4	40	3	7	1	7	5	50	0	3
Decision Models	24	11	1	7	5	7	1	0	6	1	0	4	5	14	3	1	6	17	0	1	0	6	2	15	1	6
Simulation Models with Stochastic Elements	3	2	0	0	1	2	0	0	0	0	0	0	1	1	0	1	1	2	0	0	0	1	1	1	0	1
Simulation Models without Stochastic Elements	11	5	0	6	0	2	1	0	5	0	0	3	0	11	0	0	0	6	1	4	0	0	0	10	0	1
Total	122	89	1	21	11	32	15	1	34	5	3	18	14	82	19	8	13	83	4	14	2	19	11	93	3	15

TABLE 8. PARAMETER ESTIMATION PROCEDURES USED CROSS-CLASSIFIED BY TYPE OF MODEL

Type of Model	Number of models for which Parameters were Estimated	Bases for Parameter Estimation								Number of Models which use Econometric/Statistical Analysis for Parameter Estimation	Data for Econ./Stat. Analysis				Techniques used for Econ./Stat. Analysis							Number of Models for which Parameters have been Altered Subjectively	Number of Models for which Attempts have been made to measure changes over time	Number of Models for which Parameters were not Estimated or for which Insufficient Information is available
		Tabulation of Data only	Impressions of Experts Only	Econometric/Statistical Analysis	Data Tabulation and Impressions of Experts	Data Tabulation and Econometric/Statistical Analysis	Impressions of Experts and Econometric/Statistical Analysis	Data Tabulation, Impressions of Experts and Econ./Stat. Analysis	Other Methods		Time-series Data only	Cross-sectional Data only	Both time-series and cross-sectional data	Information not available	Simple Regression Only	Multiple Regression Only	Both Simple and Multiple Regression	Other Multivariate Techniques Only	Multiple Regression and Other Multivariate Techniques	Simple and Multiple Regression and other Multivariate Techniques	Other Methods			
Descriptive Models	21	3	0	8	1	7	0	2	0	17	2	11	3	1	0	3	2	3	4	4	1	5	7	5
Forecasting Models	52	9	2	6	8	7	4	14	2	31	15	1	15	0	12	6	7	0	0	4	2	31	36	6
Decision Models	21	8	3	3	3	0	0	4	0	7	1	4	1	1	3	1	1	0	2	0	0	9	10	3
Simulation Models with Stochastic Elements	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Simulation Models with Stochastic Elements	10	3	0	0	1	0	0	6	0	6	0	0	5	1	1	0	3	0	0	0	2	8	3	1
Total	107	25	5	17	15	14	4	26	2	61	18	16	24	3	16	10	13	3	6	8	5	54	57	15

TABLE 9. PARAMETER ESTIMATION PROCEDURES USED CROSS-CLASSIFIED BY SOURCES OF INFORMATION

Principal Sources of Data used for the Model	Number of Models for which Parameters were estimated	Bases for Parameter Estimation								Number of Models which use Econometric/Statistical analysis for Parameter Estimation	Data for Econometric/Statistical Analysis				Techniques Used for Econometric/Statistical Analysis							Number of Models for which Parameters have been altered subjectively	Number of models for which attempts have been made to measure changes over time	Number of Models for which Parameters were not Estimated or for which Insufficient information is available
		Tabulation of Data Only	Impressions of Experts Only	Econometric/Statistical Analysis	Data Tabulation and Impressions of Experts	Data Tabulation and Econ./stat. analysis	Impressions of Experts and Econ./Stat. Analysis	Data Tabulation, Impressions of Experts, and Econ./Stat. analysis	Other Methods		Time series data only	Cross-sectional data only	Both time-series and cross-sectional data	Information not available	Simple Regression Only	Multiple Regression Only	Both Simple and Multiple Regression	Other Multivariate Techniques only	Multiple Regression and other Multivariate Techniques	Simple and Multiple Regression and other Multivariate Techniques	Other Methods			
Population Census Only	8	2	0	1	2	1	0	2	0	4	2	0	2	0	2	1	1	0	0	0	0	3	6	1
Other Regular Surveys	17	2	1	2	4	3	0	5	0	10	3	0	5	2	3	1	1	1	1	0	3	10	7	3
Special Surveys	13	4	0	5	0	2	0	2	0	9	1	6	2	0	1	2	2	1	2	1	0	4	4	0
Population Census and other Regular Surveys	20	3	1	3	3	2	3	5	0	13	6	3	4	0	2	3	3	0	1	3	1	10	12	0
Population Census and Special Surveys	8	2	0	2	1	1	1	-1	0	5	2	2	1	0	0	1	2	0	1	0	1	4	3	0
Other Regular Surveys and Special Surveys	13	2	1	0	2	2	0	5	1	7	1	1	4	1	3	1	1	0	0	2	0	7	8	3
Population Census, other Regular Surveys and Special Surveys	17	5	0	3	1	3	0	5	0	11	3	3	5	0	5	0	2	1	1	2	0	12	12	0
Other Sources	10	4	2	1	1	0	0	1	1	2	0	1	1	0	0	1	1	0	0	0	0	4	5	3
No information about sources of Data	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	107	25	5	17	14	14	4	26	2	61	18	16	24	3	16	10	13	3	6	8	5	54	57	13

ANNEX 2

CHARACTERISTICS OF MODELS SURVEYED

PART A

BASIC CHARACTERISTICS

Table 1: Comprehensive Education

Table 2: Student Flow System

Table 3: Student Parameter Models

Table 4: Teacher Demand and/or Supply

Table 5: Physical and/or Financial Resources

Table 6: Comprehensive - Externally Linked

Table 7: Manpower Linked

Table 8: Returns to Education

Table 9: Institutional

TABLE 1. COMPREHENSIVE EDUCATION

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
1 [illegible]R13	Projection Model for School Expenditures	Mr.Schmitz	Germany	Fin.		X					X					X		No computer used
2 [illegible] 05	A Demographic Input-Output Model for Educational Forecasting and Planning	Dr. Stone	U.K.	In prog.		X					X				X			A [illegible] 2 Ferranti-ATLAS (Titan)
3 [illegible] 06	Model of Student Flows in the British Educational System	Mr. Armitage and Miss Phillips	U.K.	In prog.		X					X				X			IBM 360 Also ATLAS FORTRAN
4 [illegible] 09	Projections of Educational Statistics in 1977-1978	Dr. Simon	U.S.A.	Fin.		X					X	X						GE Time-shared
5 YUG02	Part Model of Reform in Secondary Education	Mr.Zivković	Yugoslavia	Fin.			X				X				X			ELLIOTT 803 B
6 INT02	Generalised Simulation Model of an Educational System	Mrs.Schwarz	Int. Org.	In prog.				X	X								X	IBM 360/40 360/30 7090 FORTRAN 4

TABLE 2. STUDENT FLOW SYSTEM

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
7 GER04	A Student Flow Model for General Secondary Education	Dr. Roeloffs	Germany	Fin.		X					X	X						CDC 6600 IBM 360/30 + 50 FORTRAN
8 GER07	A Student Forecasting Model for Primary and Secondary Education	Dr. Schmittlein	Germany	Fin.		X					X	X						IBM
9 AUS01	A descriptive student Flow Model of the Austrian Educational System	Dr. Wieser	Austria	In prog.	X				X						X			No computer used
10 BEL02	Forecasting University Enrolments	Dr. Swaelen	Belgium	Fin.		X					X	X						IBM 1130 ; FORTRAN 4
11 CAN08	Advance Estimates of School Enrolment in Canada	Mr. LeSeelleur	Canada	Fin.		X					X		X					No computer used
12 CAN09	Medium Term Forecasts of Educational Enrolment in Canada	Mr. Illing	Canada	Fin.		X					X			X				No computer used
13 US 13	Demonstration of Application of Cohort Analysis Technique for Projecting Enrolment and Degree Data in Higher Education	Mr. Lewis	U.S.A.	In prog.		X					X			X				No computer used

TABLE 2. STUDENT FLOW SYSTEM (Contd.)

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numberical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
14 IRE02	Student Enrolment Model for Countries	Mr.Hyland	Ireland	In prog.		X					X	X						Honeywell 200 FORTRAN 4
15 IRE03	Local Student Enrolment Model	Mr. Hyland	Ireland	In prog.		X					X	X						Honeywell 200 FORTRAN 4
16 IRE05	An Educational Flow Forecasting Model	Mr. Francois	Ireland	In prog.		X					X				X			IBM 360/44 FORTRAN 4
17 IRE06	Control Concepts in Computer-aided Educational Planning	Mr. Francois	Ireland	In prog.			X		X						X			IBM 360/44 FORTRAN 4
18 ICE01	An Approach to Measure and Change the Output Structure of an Educational System	Dr. Benediktsson	Iceland	Fin.		X					X			X				IBM 1620 FORTRAN Special Program
19 NOR01	A Model for Predicting Educational Enrolment and Output in the Post-Secondary Educational System	Mrs. Birkeland	Norway	Fin.		X					X				X			UNIVAC 1107
20 NOR03	Human Flow Model of the Norwegian Educational System	Prof. Thonstad	Norway	Fin.		X					X				X			UNIVAC 1105
21 NOR05	Model for Determining the Optimum Allocation of Entrants to Post-Secondary Educat.	Mr. Fredriksen	Norway	Fin.			X				X				X			No computer used

TABLE 2. STUDENT FLOW SYSTEM (Contd.)

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
22 UK 02	Student Forecasting Model for Scotland	Mr. Fearnley	U.K.	In prog.		X					X	X						Olivetti 101 working on putting it on IBM/360/40
23 UK 09	General Models for Pupil Forecasting for Local Government Authorities with Application to Three Local Authorities	Dr. Groom	U.K.			X					X			X				IBM FORTRAN
24 UK 10	Factors Affecting Staying on at School at the Local Government Authority Level	Dr. Groom	U.K.	Fin.		X					X			X				IBM FORTRAN
25 UK 13	Projection of Numbers in Higher Education	Miss Weatherburn	U.K.			X					X	X						ICT 1301
26 SWE01	Model for Projections of the Swedish Educational System	Mr. Svanfeldt	Sweden	Fin.		X					X		X					No computer used
27 SWI01	Model of the Educational System of the Canton Vaud	Mr. Schellhorn	Switzerland	In prog.				X		X				X				IBM 7040 FORTRAN
28 JAP05	Forecasting Model of New Entrants into Upper Secondary Schools by Course in Kagoshima Prefecture	Mr. Sakaue	Japan	Fin.		X					X			X				No computer used
29 JAP06	Forecasting Model of the School Population in Osaka Prefecture	Mr. Yamane	Japan	Fin.				X		X				X				HIPAC 1018

TABLE 3. STUDENT PARAMETER MODELS

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		* Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
30 GER03	Descriptive Model of the Baden-Württemberg Education System	Dr. Schweikert	Germany	In prog.	X						X					X		IBM 1401 IBM 7094 FORTRAN 2 + 4 DLEDC(Special language)
31 GER09	A Student Flow Model for Baden-Württemberg Higher Education	Dr. Ottwaska	Germany	Fin.		X				X		X						CDC 6400 FORTRAN
32 CAN02	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario	Mr. McReynolds	Canada	In prog.	X						X				X			IBM 7094
33 US 03	Model of Sectoral Demand for Public and Private Higher Education	Mr.Bishop	U.S.A.	In prog.	X						X				X			Control Data
34 US 14	The Production of College Graduates	Mr. Perl	U.S.A.	In prog.	X						X				X			IBM 7094 C.D. 6400
35 FRA04	Explanation of Difference in Enrolment Ratios by Region	Mme Tanguy	France	In prog.	X						X			X				IBM 360 FORTRAN
36 FRA08	Educational Sel[illegible] and Orientation from the 6ème to the [illegible]ème.	Mr. Girard	France	Fin.	X						X					X		No computer used
37 UK 11	Factors Influencing Choice of Higher Education	Prof. Barnard	U.K.	In prog.	X						X				X			ICL 1909

TABLE 4. TEACHER DEMAND AND/OR SUPPLY

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
38 GER06	A Teacher Supply and Demand for Secondary Education	Dr.Roeloffs	Germany	In prog.		X					X	X						CDC 6600 IBM 360/30+80
39 GER10	An Enrolment Forecasting Model for Primary & Secondary Education in Baden-Württemberg	Dr. Ottweska	Germany	Fin.		X				X		X						IBM 1620 FORTRAN
40 GER12	A Model for Optimising Teacher Utilisation	Mr.Döring	Germany	In prog.			X		X									Computer will be used
41 CAN14	Model for Provincial Grants to Universities	Mr.Proulx	Canada	In prog.			X			X					X			Computer will be used
42 US 12	The Supply and Demand for College Teachers	Mr. Cartter	U.S.A.	Fin.		X					X					X		No computer used
43 IRE01	Secondary School Teacher Quota Model	Mr. Hyland	Ireland	In prog.				X			X	X						Honeywell 200 FORTRAN 4
44 ITA02	Allocation of Teaching Personnel in the Italian Universities.	Prof.Colombo Dr.Trivellato Prof. Vian	Italy	Fin.			X				X				X			No computer used
45 NOR10	Study on the Demand for and Supply of Teachers	Mr. Eide	Norway	Fin.	X						X	X						No answer
46 UK 03	Teacher Supply Model for Scotland	Mr.Fearnley	U.K.	In prog.		X					X	X						Olivetti 101 will use 360/40
47 UK 04	Teacher Demand Model for Scotland	Mr. Bennett	U.K.	In prog.				X			X	X						IBM 360/40 COBOL
48 UK 12	Student Forecasting and Teacher Mobility Models for the City of London	Mr. Little	U.K.	Fin.		X					X	X						IBM 360/50 FORTRAN
49 UK 14	Teacher Supply and Demand Model	Miss Weatherburn	U.K.	Fin.		X					X	X						ICT 1904 COBOL
50 SWI02	Teacher Supply and Demand Model for the Canton Geneva	Mr.Hutmacher	Switzerland	In prog.		X					X					X		No answer

TABLE 5. PHYSICAL AND/OR FINANCIAL RESOURCES

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTER-ISTICS				ANALYTIC CHARACTER-ISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
51 GER05	A University Student Forecasting Model	Dr.Roeloffs	Germany	Fin.		X					X	X						CDC 6600 IBM 360/50 FORTRAN
52 BEL05	Optimal Location of New Industrial High School for Engineering	Dr.Swaelen	Belgium	Fin.			X				X	X						IBM 1130 Special program FORTRAN 4
53 CAN01	Pilot County School System Planning Model	Dr. Watson	Canada	Planned			X			X					X			Planned
54 CAN03	Model for Calculation of Optimal Patterns of School Busing and School Location of Ontario Counties	Mr. Tracz	Canada	In prog.			X				X				X			No computer used
55 CAN07	Model for Determining Provincial Grants to Ontario Universities	Mr. Wright	Canada	Fin.			X				X					X		No computer used
56 CAN13	Model for Allocation of Provincial Grants to Local School Districts	Mr.Lessard	Canada	Fin.			X				X	X						No computer used
57 US 04	The Optimal Pattern of Subsidy of Undergraduate Education when Growth and Redistribution are Part of the Objective Function	Mr. Bishop	U.S.A.	In prog.			X				X				X			No answer
58 US 06	Student and Resource Inputs to Higher Education and their Effect on Output	Mr. Bayer	U.S.A.	In prog.	X						X				X			CDC 3600 will get 6600 COBOL and FORTRAN
59 US 07	Demand for Higher Education as a Function of Family Income	Dr.Hoenack	U.S.A.	In prog.			X				X					X		CD 1604, 8090 FORTRAN 4
60 FRA02	Planning Model of Construction Needs and Location of Comprehensive Lower Secondary Schools	Mr.Dalix	France	Fin.			X				X	X						No computer used

TABLE 5. PHYSICAL AND/OR FINANCIAL RESOURCES (Contd.)

Serial n° and code	Type of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
61 IRE07	A Generalised Method for Allocating Academic Departments to Alternative, Separate Sites	Mr.Cantwell	Ireland	Fin.			X				X			X				ICL 1904 ALGOL
62 ITA03	Budgetary Allocation for Construction in the Pre-University School System	Prof.Vian	Italy	In prog.			X				X				X			Will be used
63 NOR02	A Higher Education Resource(Cost)Model	Mrs. Birkeland	Norway	In prog.		X					X			X				CDC 3300
64 NOR06	Cost Model for Primary Education	Mr. Eide Mr.Magnussen	Norway	Fin.		X					X	X						No computer used
65 NOR07	Current Costs and Demand for Teachers in the Upper Level Secondary Schools and the Vocational Schools for Industry	Mr.Magnussen	Norway	Fin.		X					X	X						No computer used
66 UK. 01	Model to determine Government Grants and Loan Sanctions to Local Government	Mr.Hillhouse	U.K.	Fin.			X				X	X						IBM 360/40
67 TUR02	Cost Model for Turkish Higher Education	Mr. Eide	Turkey	Fin.	X						X			X				No computer used

TABLE 6. COMPREHENSIVE - EXTERNALLY LINKED

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
68 AUS02	A Cost-Minimisation Student Flow-Model, adaptive to Annually determined Manpower Requirements	Dr. Clement	Austria	In prog.			X		X						X			No computer used
69 CAN10	Calculation of Educational Stocks and Productivity of Educated Manpower	Mr. Illing	Canada	In prog.		X					X			X				UNIVAC 1108, IBM 360/65 FORTRAN 14 Massager 68
70 US 08	Washington Center for Metropolitan Studies City I	Mr. Clary	U.S.A.	Fin.				X		X		X						No computer used
71 US 11	A Dynamic Linear Programming Model for Educational Planning with Application to Morocco	Dr.Golladay	U.S.A.	Fin.			X				X				X			UNIVAC 408
72 FRA01	General Optimisation Model for the Economy and the Educational System	Mr.Ettori Mr.Manuel	France	Fin.			X				X			X				IBM 360/50
73 FRA07	Educational and Manpower Sections of the Sixth French Plan	Mr.Métais	France	Planned			X				X			X	X			No computer used
74 NOR11	Model of Educated Manpower Input per Unit of Intermediate and Final Outputs	Mr. Kobberstad	Norway	Fin.	X						X				X			No computer used

TABLE 6. COMPREHENSIVE - EXTERNALLY LINKED (Contd.)

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTER-ISTICS				ANALYTIC CHARACTER-ISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
75 NET03	Short-term Forecasting Model for the Netherlands Educational System	Mr. Passenier Mr. Thoolen	Netherlands	In prog.		X					X			X				ELECTROLOGICA x 8
76 NET04	Medium-Term Forecasting Model for the Netherlands Educational System	Mr. Passenier Mr. Thoolen	Netherlands	In prog.		X					X			X				will be used as in MODEL 3
77 NET05	Long-Term Forecasting Model for the Netherlands Educational System	Mr. Passenier Mr. Thoolen	Netherlands	Fin.		X					X			X				ELECTROLOGICA x 5
78 POR01	Simulation Model of the Portuguese Educational System	Mr. Garcia	Portugal	Fin.				X			X							IBM 1130 FORTRAN 4
79 JAP03	Nation-wide Regional Econometric Model	Mr. Ohkita	Japan	Fin.		X					X			X				HITAC 5020 FORTRAN 4
80 JAP08	Historical Analysis of the Numbers of Students in Higher Education in Six Countries	Mr. Ushiogi	Japan	In prog.	X						X				X			NEAC 2203 FORTRAN
81 INT01	Generalised Simulation Model of an Educational System and Its Relation to the Manpower System (Castesia)	Mr. Solomon Mr. [illegible]	Int. Org.	Fin.				X			X						X	IBM 1401 360/50 FORTRAN 4
82 INT03	Global Accounts for Manpower and Education (G.A.M.E.) Model	Dr. [illegible] Dr. [illegible]	Int. Org.	Fin.				X		X							X	IBM 360/40 FORTRAN 4

TABLE 7. MANPOWER LINKED

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
83 GER02	Student Forecasting Model, carrying through into First Employment	Dr.Alex	Germany	In prog.		X					X					X		HONEYWELL H 1250 FORTRAN D
84 GER11	A Manpower Supply Model for Baden-Württemberg	Dr.Ottwaska	Germany	In prog.			X			X		X						CDC 6400 FORTRAN
85 BEL01	Forecasting Future Qualified Manpower Needs	Prof. Feldheim	Belgium	In prog.		X					X					X		IBM 7040 Special program
86 BEL04	Analysis of the Supply of University Graduates	Dr.Swaelen	Belgium	Fin.		X					X	X						IBM 7040 Special program
87 BEL06	Needs of the Economy for University Graduates to 1980	Dr. Desaeyere	Belgium	Fin.	X						X				X			IBM 360/40 Special program FORTRAN 4
88 CAN11	Manpower Supply Model for Canada	Mr. Pankhurst	Canada	In prog.		X					X			X				No computer used
89 CAN12	Manpower Requirements Model for Canada	Mr. Pankhurst	Canada	In prog.		X				X				X				No computer used
90 FRA03	Calculation of the Educational Stock embodied in the French Active Population	Mr. Debeauvais	France	Fin.		X					X				X			No computer used
91 FRA06	Fifth Plan Manpower Demand Model	Mr.d'Hugues	France	Fin.		X					X			X				No computer used
92 ITA01	Demand and Supply of Graduates of Higher Education in Italy	Mr.Cacace Mr.d'Ambrosio	Italy	Fin.		X					X			X				No computer used

TABLE 7. MANPOWER LINKED (Contd.)

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTER-ISTICS				ANALYTIC CHARACTER-ISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
93 NOR04	Long-Term Manpower Demand Model	Mr. Nygaard	Norway	Fin.		X					X			X				UNIVAC 1107
94 NET06	Assessment of the Supply of Highly Skilled Personnel	Mr. Passenier Mr. Thoolen	Netherlands	Fin.		X					X			X				ELECTROLOGICA x 8
95 UK 15	Integrated Set of Education and Manpower Models	Miss Weatherburn	U.K.	In prog.		X					X	X						CIT 1904 COBOL
96 TUR01	Long-Term Iterative Forecasting Model for Manpower Needs of the Economy	Mrs. Kismir Mrs. Onsan Mrs. Soy	Turkey	Fin.		X					X			X				No computer used
97 JAP01	Supply and Demand Model of Graduates Beyond the Compulsory Level	Mr. Wakaba	Japan	Fin.		X					X			X				No computer used
98 JAP02	Forecasting Model for Manpower Supply	Mr. Ohta	Japan	Fin.		X					X			X				TOSBAC 8200
99 JAP04	Forecasting Model for the Demand for Vocationally-trained Skilled and Semi-Skilled Workers	Mr. Ogura	Japan	In prog.		X					X							No computer used
100 YUG01	The Development of Education in Yugoslavia in the Period 1966-1970 and its Adaptation to the Needs of the Economy and Society	Mr. Koricancić	Yugoslavia	Fin.			X				X							No answer

TABLE 8. RETURNS TO EDUCATION

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
101 US 01	Contribution of Educational Inputs to Economic and non-Economic Behavioural Outputs	Mr.Juster	U.S.A.	Planned	X						X					X		IBM 1130 Access 7090 and 360
102 US 02	The Effect of Education on Economic Variables	Mr.Becker	U.S.A.	In prog.	X						X					X		IBM 1130
103 UK 07	Rates of Return to Different Types and Levels of Education with Detailed Information on the Electrical Engineering Industry	Prof. Blaug	U.K.	Fin.	X						X				X			IBM 1440
104 JAP07	Decision Model of the Optimal Amount of Education for Individuals	Mr.Oniki	Japan	In prog.	X					X					X			NEAC 2200-800 FORTRAN

TABLE 9. INSTITUTIONAL

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
105 GER01	A University Capacity Model	Mr. Heim	Germany	In prog.			X				X					X		not yet used
106 GER08	A University Capacity Model	Mr. Frey	Germany	In prog.		X					X	X						TR 4 Algol 60
107 GER14	Model of University Enrolment and Output for Schleswig Holstein	Mr.Schmidt	Germany	In prog.		X					X				X			ELECTROLOGICA EL - x 8 FORTRAN 4, Algol
108 BEL03	Generalised University Facilities Planning Model	Dr.Swaelen	Belgium	In prog.				X			X	X						IBM 1130 FORTRAN 4,special program
109 BEL07	A Student Forecasting Model for Universities	Prof. Meulepas	Belgium	Fin.		X					X							No computer used
110 CAN04	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges	Mr. Judy Mr. Levine	Canada	Fin.				X			X				X			IBM 7094,360/65, Univac II
111 CAN05	"	"	"	In prog.				X							X			IBM 7094,360/65,Univac II
112 CAN06	"	"	"	Planned				X			X				X			Not yet started, probably IBM 7094,360/65, Univac II
113 DEN01	A simulation Model for Analysing Class Sizes in Teacher Training Colleges	Mr. Rasmussen	Denmark	Fin.				X			X				X			IBM 7094, FORTRAN 4
114 FRA05	Budgetary Allocation and Student Orientation Model for the Faculty of Sciences at Grenoble	Mr. Montagnat	France	In prog.			X				X				X			IBM 7040

TABLE 9._ INSTITUTIONAL (Contd.)

Serial n° and code	Title of the model	GENERAL			FUNCTIONAL CHARACTERISTICS				ANALYTIC CHARACTERISTICS			BUILDER CHARACTERISTICS						TYPE OF COMPUTER USED
		Respondent	Location	Work Status	Descriptive	Forecasting	Decision-making	Simulation	Theoretical Algebraic	Numerical and Experiment	Numerical and Applied	Prin. Govt. Orgs. resp. for education	National Statistical Offices	Other Govt. Offices	Universities	Other non-Govt. Organisations	International Organisations	
115 IRE04	Analysis of Curriculum Options and their Relationship to Institutional Characteristics and Inputs	Mr. Hyland	Ireland	In prog.	X						X	X						Honeywell 200, special program
116 NOR08	Model for Calculation of Current Costs in Universities - I	Mr. Magnussen	Norway	Fin.	X						X	X						Planned in the future
117 NOR09	Model for Calculation of Current Costs in Universities - II.	Mr. Magnussen	Norway	Fin.	X						X	X						No computer used
118 NET01	Latent Factor Analysis of the Numerical Yield of the Rotterdam School of Economics	Prof. Begeer	Netherlands	Fin.				X			X	X						No computer used
119 NET02	Description of the Selection Process at the Rotterdam School of Economics	Prof. Begeer	Netherlands	In prog.	X				X		X				X			No answer
120 UK 0[illegible]	Measurement of Productivity of Educational Institutions (Higher, Secondary and Primary)	Prof. Blaug	U.K.	Fin.	X						X				X			No computer used
121 US 05	Model of Student Achievement as a Function of Teacher and School Characteristics	Mr. Parti	U.S.A.	In prog.			X				X				X			will be used : CDC 6400, FORTRAN 4 special program
122 US 10	Determinants of the quality of Higher Education	Mr. Froomkin	U.S.A.	In prog.	X						X	X						No computer used

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PART B

FUNCTIONAL CHARACTERISTICS

Table 1: Comprehensive Education

Table 2: Student Flow System

Table 3: Student Parameter Models

Table 4: Teacher Demand and/or Supply

Table 5: Physical and/or Financial Resources

Table 6: Comprehensive - Externally Linked

Table 7: Manpower Linked

Table 8: Returns to Education

Table 9: Institutional

TABLE 1. COMPREHENSIVE EDUCATION

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS														
		ONLY TO DESCRIBE:					TO EXPLAIN:									
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables
1 GER13	Projection Model for School Expenditures Mr. Schmitz															
2 UK 05	A Demographic Input-Output Model for Educational Forecasting and Planning Dr. Stone															
3 UK 06	Model of Student Flows in the British Educational System Mr. Armitage and Miss Phillips															
4 US 09	Projections of Educational Statistics in 1977-1978 Dr. Simon															
5 YUG02	Pert Model of Reform in Secondary Education Mr. Živković															
6 INT02	Generalised Simulation Model of an Educational System Mrs. Schwarz															

SERIAL NUMBER AND CODE	Title of the model and name of respondent	FORECASTING MODELS												
		TO PROVIDE FORECASTS OF:												
		Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities
1 GER13	Projection Model for School Expenditures Mr. Schmitz					X								
2 UK 05	A Demographic Input-Output Model for Educational Forecasting and Planning Dr. Stone	X	X	X	X	X								
3 UK 06	Model of Student Flows in the British Educational System Mr. Armitage and Miss Phillips	X	X	X	X	X	X	X						X
4 US 09	Projections of Educational Statistics in 1977-1978 Dr. Simon	X	X			X	X							
5 YUG02	Pert Model of Reform in Secondary Education Mr. Živković													
6 INT02	Generalised Simulation Model of an Educational System Mrs. Schwarz													

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DECISION MODELS						
		TO SOLVE FOR THE VALUES OF VARIABLES FOR:						
		GLOBAL DECISIONS		PARTIAL DECISIONS				
		Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions
1 GER13	Projection Model for School Expenditures Mr. Schmitz							
2 UK 05	A Demographic Input-Output Model for Educational Forecasting and Planning Dr. Stone							
3 UK 06	Model of Student Flows in the British Educational System Mr. Armitage and Miss Phillips							
4 US 09	Projections of Educational Statistics in 1977-1978 Dr. Simon							
5 YUG02	Pert Model of Reform in Secondary Education Mr. Živković							X
6 INT02	Generalised Simulation Model of an Educational System Mrs. Schwarz							

SERIAL NUMBER AND CODE	Title of the model and name of respondent	SIMULATION MODELS															
			TO DETERMINE THE EFFECTS OF:														
			ALTERNATIVE						UPON								
		FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
1 GER13	Projection Model for School Expenditures Mr. Schmitz																
2 UK 05	A Demographic Input-Output Model for Educational Forecasting and Planning Dr. Stone																
3 UK 06	Model of Student Flows in the British Educational System Mr. Armitage and Miss Phillips																
4 US 09	Projections of Educational Statistics in 1977-1978 Dr. Simon																
5 YUG02	Pert Model of Reform in Secondary Education Mr. Živković																
6 INT02	Generalised Simulation Model of an Educational System Mrs. Schwarz			X	X	X	X		X	X	X	X	X	X			

TABLE 2. STUDENT FLOW SYSTEM

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS														
		ONLY TO DESCRIBE:					TO EXPLAIN:									
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables
7 GER04	A Student Flow Model for General Secondary Education Gruppe Bildungsplanung															
8 GER07	A Student forecasting Model for Primary and Secondary Education Dr. Schmittlein															
9 AUS01	A descriptive student Flow Model of the Austrian Educational System Dr. Wieser		X													
10 BEL02	Forecasting University Enrolments Dr. Swaelen															
11 CAN08	Advance Estimates of School Enrolment in Canada Mr. LeSeelleur															
12 CAN09	Medium Term Forecasts of Educational Enrolment in Canada Mr. Illing															
13 US 13	Demonstration of Application of Cohort Analysis Technique for Projecting Enrolment and Degree Data in Higher Education Mr. Lewis															

SERIAL NUMBER AND CODE	Title of the model and name of respondent	FORECASTING MODELS												
		TO PROVIDE FORECASTS OF:												
		Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities
7 GER04	A Student Flow Model for General Secondary Education Gruppe Bildungsplanung	X	X	X	X									
8 GER07	A Student forecasting Model for Primary and Secondary Education Dr. Schmittlein	X	X	X	X									
9 AUS01	A descriptive student Flow Model of the Austrian Educational System Dr. Wieser													
10 BEL02	Forecasting University Enrolments Dr. Swaelen	X												
11 CAN08	Advance Estimates of School Enrolment in Canada Mr. LeSeelleur	X	X	X	X									
12 CAN09	Medium Term Forecasts of Educational Enrolment in Canada Mr. Illing	X												
13 US 13	Demonstration of Application of Cohort Analysis Technique for Projecting Enrolment and Degree Data in Higher Education Mr. Lewis	X	X		X									

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DECISION MODELS						
		TO SOLVE FOR THE VALUES OF VARIABLES FOR:						
		GLOBAL DECISIONS		PARTIAL DECISIONS				
		Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions
7 GER04	A Student Flow Model for General Secondary Education Gruppe Bildungsplanung							
8 GER07	A Student forecasting Model for Primary and Secondary Education Dr. Schmittlein							
9 AUS01	A descriptive student Flow Model of the Austrian Educational System Dr. Wieser							
10 BEL02	Forecasting University Enrolments Dr. Swaelen							
11 CAN08	Advance Estimates of School Enrolment in Canada Mr. LeSeelleur							
12 CAN09	Medium Term Forecasts of Educational Enrolment in Canada Mr. Illing							
13 US 13	Demonstration of Application of Cohort Analysis Technique for Projecting Enrolment and Degree Data in Higher Education Mr. Lewis							

SERIAL NUMBER AND CODE	Title of the model and name of respondent	SIMULATION MODELS															
			TO DETERMINE THE EFFECTS OF:														
			ALTERNATIVE						UPON								
		FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
7 GER04	A Student Flow Model for General Secondary Education Gruppe Bildungsplanung																
8 GER07	A Student forecasting Model for Primary and Secondary Education Dr. Schmittlein																
9 AUS01	A descriptive student Flow Model of the Austrian Educational System Dr. Wieser																
10 BEL02	Forecasting University Enrolments Dr. Swaelen																
11 CAN08	Advance Estimates of School Enrolment in Canada Mr. LeSeelleur																
12 CAN09	Medium Term Forecasts of Educational Enrolment in Canada Mr. Illing																
13 US 13	Demonstration of Application of Cohort Analysis Technique for Projecting Enrolment and Degree Data in Higher Education Mr. Lewis																

TABLE 2. STUDENT FLOW SYSTEM (Contd.)

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS												
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:												
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities
14 IRE02	Student Enrolment Model for Countries Mr. Hyland																X												
15 IRE03	Local Student Enrolment Model Mr. Hyland																X												
16 IRE05	An Educational Flow Forecasting Model Mr. Francis																X	X	X										
17 IRE06	Control Concepts in Computer-aided Educational Planning Mr. Francis																												
18 ICE01	An Approach to Measure and Change the Output Structure of an Educational System Dr. Benediktsson																X		X	X									
19 NOR01	A Model for Predicting Educational Enrolment and Output in the Post-Secondary Educational System Mrs. Birkeland																X	X	X	X									
20 NOR03	Human Flow Model of the Norwegian Educational System Prof. Thonstad																X	X				X							
21 NOR05	Model for Determining the Optimum Allocation of Entrants to Post-Secondary Education Mr. Fredriksen																												

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DECISION MODELS							SIMULATION MODELS															
		TO SOLVE FOR THE VALUES OF VARIABLES FOR:								TO DETERMINE THE EFFECTS OF:														
		GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
14 IRE02	Student Enrolment Model for Countries Mr. Hyland																							
15 IRE03	Local Student Enrolment Model Mr. Hyland																							
16 IRE05	An Educational Flow Forecasting Model Mr. Francis																							
17 IRE06	Control Concepts in Computer-aided Educational Planning Mr. Francis						X																	
18 ICE01	An Approach to Measure and Change the Output Structure of an Educational System Dr. Benediktsson																							
19 NOR01	A Model for Predicting Educational Enrolment and Output in the Post-Secondary Educational System Mrs. Birkeland																							
20 NOR03	Human Flow Model of the Norwegian Educational System Prof. Thonstad																							
21 NOR05	Model for Determining the Optimum Allocation of Entrants to Post-Secondary Education Mr. Fredriksen			X																				

TABLE 2. STUDENT FLOW SYSTEM (Contd.)

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS														
		ONLY TO DESCRIBE:					TO EXPLAIN:									
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables
22 UK 02	Student Forecasting Model for Scotland Mr. Fearnley															
23 UK 09	General Models for Pupil Forecasting for Local Government Authorities with Application to Three Local Authorities Dr. Green															
24 UK 10	Factors Affecting Staying on at School at the Local Government Authority Level Dr. Green															
25 UK 13	Projection of Numbers in Higher Education Miss Weatherburn															
26 SWE01	Model for Projections of the Swedish Educational System Mr. Svanfeldt															
27 SWI01	Model of the Educational System of the Canton Vaud Mr. Schellhorn															
28 JAP05	Forecasting Model of New Entrants into Upper Secondary Schools by Course in Kagoshima Prefecture Mr. Sakane															
29 JAP06	Forecasting Model of the School Population in Osaka Prefecture Mr. Yamane															

SERIAL NUMBER AND CODE	Title of the model and name of respondent	FORECASTING MODELS												
		TO PROVIDE FORECASTS OF:												
		Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities
22 UK 02	Student Forecasting Model for Scotland Mr. Fearnley	X	X		X									
23 UK 09	General Models for Pupil Forecasting for Local Government Authorities with Application to Three Local Authorities Dr. Green								X					
24 UK 10	Factors Affecting Staying on at School at the Local Government Authority Level Dr. Green	X												
25 UK 13	Projection of Numbers in Higher Education Miss Weatherburn	X												
26 SWE01	Model for Projections of the Swedish Educational System Mr. Svanfeldt	X	X		X									
27 SWI01	Model of the Educational System of the Canton Vaud Mr. Schellhorn													
28 JAP05	Forecasting Model of New Entrants into Upper Secondary Schools by Course in Kagoshima Prefecture Mr. Sakane				X						X			
29 JAP06	Forecasting Model of the School Population in Osaka Prefecture Mr. Yamane													

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DECISION MODELS							SIMULATION MODELS															
		TO SOLVE FOR THE VALUES OF VARIABLES FOR:							FOR TRAINING ONLY	TO DETERMINE THE EFFECTS OF:														
		GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions		Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
22 UK 02	Student Forecasting Model for Scotland Mr. Fearnley																							
23 UK 09	General Models for Pupil Forecasting for Local Government Authorities with Application to Three Local Authorities Dr. Green																							
24 UK 10	Factors Affecting Staying on at School at the Local Government Authority Level Dr. Green																							
25 UK 13	Projection of Numbers in Higher Education Miss Weatherburn																							
26 SWE01	Model for Projections of the Swedish Educational System Mr. Svanfeldt																							
27 SWI01	Model of the Educational System of the Canton Vaud Mr. Schellhorn										X					X	X			X				X
28 JAP05	Forecasting Model of New Entrants into Upper Secondary Schools by Course in Kagoshima Prefecture Mr. Sakane																							
29 JAP06	Forecasting Model of the School Population in Osaka Prefecture Mr. Yamane											X				X								

TABLE 1. STUDENT PARAMETER MODELS

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS														
		ONLY TO DESCRIBE:					TO EXPLAIN:									
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables
30 GER03	Descriptive Model of the Baden-Württemberg Education System Dr. Schweikert		X													
31 GER09	A Student Flow Model for Baden-Württemberg Higher Education Dr. Ottwaska															
32 CAN02	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario Mr. McReynolds								X				X			
33 US 03	Model of Sectoral Demand for Public and Private Higher Education Mr. Bishop												X			
34 US 14	The Production of College Graduates Mr. Perl								X							
35 FRA04	Explanation of Difference in Enrolment Ratios by Region Mme. Tanguy						X									
36 FRA06	Educational Selection and Orientation from the 6ème to the 2ème Mr. Girard						X		X				X			
37 UK 11	Factors Influencing Choice of Higher Education Prof. Barnard						X						X		X	

SERIAL NUMBER AND CODE	Title of the model and name of respondent	FORECASTING MODELS												
		TO PROVIDE FORECASTS OF:												
		Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities
30 GER03	Descriptive Model of the Baden-Württemberg Education System Dr. Schweikert													
31 GER09	A Student Flow Model for Baden-Württemberg Higher Education Dr. Ottwaska	X	X	X	X		X		X		X			
32 CAN02	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario Mr. McReynolds													
33 US 03	Model of Sectoral Demand for Public and Private Higher Education Mr. Bishop													
34 US 14	The Production of College Graduates Mr. Perl													
35 FRA04	Explanation of Difference in Enrolment Ratios by Region Mme. Tanguy													
36 FRA06	Educational Selection and Orientation from the 6ème to the 2ème Mr. Girard													
37 UK 11	Factors Influencing Choice of Higher Education Prof. Barnard													

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DECISION MODELS						
		TO SOLVE FOR THE VALUES OF VARIABLES FOR:						
		GLOBAL DECISIONS		PARTIAL DECISIONS				
		Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions
30 GER03	Descriptive Model of the Baden-Württemberg Education System Dr. Schweikert							
31 GER09	A Student Flow Model for Baden-Württemberg Higher Education Dr. Ottwaska							
32 CAN02	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario Mr. McReynolds							
33 US 03	Model of Sectoral Demand for Public and Private Higher Education Mr. Bishop							
34 US 14	The Production of College Graduates Mr. Perl							
35 FRA04	Explanation of Difference in Enrolment Ratios by Region Mme. Tanguy							
36 FRA06	Educational Selection and Orientation from the 6ème to the 2ème Mr. Girard							
37 UK 11	Factors Influencing Choice of Higher Education Prof. Barnard							

SERIAL NUMBER AND CODE	Title of the model and name of respondent	SIMULATION MODELS															
			TO DETERMINE THE EFFECTS OF:														
			ALTERNATIVE						UPON								
		FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
30 GER03	Descriptive Model of the Baden-Württemberg Education System Dr. Schweikert																
31 GER09	A Student Flow Model for Baden-Württemberg Higher Education Dr. Ottwaska																
32 CAN02	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario Mr. McReynolds																
33 US 03	Model of Sectoral Demand for Public and Private Higher Education Mr. Bishop																
34 US 14	The Production of College Graduates Mr. Perl																
35 FRA04	Explanation of Difference in Enrolment Ratios by Region Mme. Tanguy																
36 FRA06	Educational Selection and Orientation from the 6ème to the 2ème Mr. Girard																
37 UK 11	Factors Influencing Choice of Higher Education Prof. Barnard																

TABLE 4. TEACHER DEMAND AND/OR SUPPLY

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:							FOR TRAINING ONLY	TO DETERMINE THE EFFECTS OF:														
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions		Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
38 GER06	A Teacher Supply and Demand for Secondary Education Dr. Roellofs																						X																													
39 GER10	An Enrolment Forecasting Model for Primary and Secondary Education in Baden-Württemberg Dr. Ottweska																X	X	X	X		X																														
40 GER12	A Model for Optimising Teacher Utilisation Mr. Doring																																X																			
41 CAN14	Model for Provincial Grants to Universities Mr. Proulx																																	X																		
42 US 12	The Supply and Demand for College Teachers Mr. Cartter																X	X				X	X																													
43 IRE01	Secondary School Teacher Quota Model Mr. Hyland																																					X			X	X				X	X	X				
44 ITA02	Allocation of Teaching Personnel in the Italian Universities Prof. Colombo Dr. Trivellato Prof. Vian																																X																			
45 NOR10	Study on the Demand for and Supply of Teachers Mr. Eide										X																																									
46 UK 03	Teacher Supply Model for Scotland Mr. Fearnley																						X																													
47 UK 04	Teacher Demand Model for Scotland Mr. Bennett																																					X				X					X					
48 UK 12	Student Forecasting and Teacher Mobility Models for the City of London Mr. Little																X					X																														
49 UK 14	Teacher Supply and Demand Model Miss Weatherburn																					X	X																													
50 SWI02	Teacher Supply and Demand Model for the Canton Geneva Mr. Hutmacher																					X	X																													

TABLE 5. PHYSICAL AND/OR FINANCIAL RESOURCES

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:							TO DETERMINE THE EFFECTS OF:															
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
51 GER05	A University Student Forecasting Model Dr. Roellofs																X	X	X	X	X																															
52 BEL05	Optimal Location of New Industrial High School for Engineering Dr. Swaelen																																	X																		
53 CAN01	Pilot County School System Planning Model Dr. Watson																																	X																		
54 CAN03	Model for Calculation of Optimal Patterns of School Busing and School Location of Ontario Counties Mr. Tracz																																	X																		
55 CAN07	Model for Determining Provincial Grants to Ontario Universities Mr. Wright																																	X																		
56 CAN13	Model for Allocation of Provincial Grants to Local School Districts Mr. Lessard																																	X																		
57 US 04	The Optimal Pattern of Subsidy of Undergraduate Education when Growth and Redistribution are Part of the Objective Function Mr. Bishop																																	X																		
58 US 06	Student and Resource Inputs to Higher Education and their Effect on Output Mr. Bayer							X																																												
59 US 07	Demand for Higher Education as a Function of Family Income Dr. Hoenack																																	X																		
60 FRA02	Planning Model of Construction Needs and Location of Comprehensive Lower Secondary Schools Mr. Daliz																																	X																		

TABLE 5. PHYSICAL AND/OR FINANCIAL RESOURCES (Contd.)

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:								TO DETERMINE THE EFFECTS OF:														
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
61 IRE07	A Generalised Method for Allocating Academic Departments to Alternative, Separate Sites Mr. Cantwell																												X																							
62 ITA03	Budgetary Allocation for Construction in the Pre-University School System Prof. Vian																												X																							
63 NOR02	A Higher Education Resource (Cost) Model Mrs. Birkeland																				X																															
64 NOR06	Cost Model for Primary Education Mr. Eide Mr. Magnussen																				X																															
65 NOR07	Current Costs and Demand for Teachers in the Upper Level Secondary Schools and the Vocational Schools for Industry Mr. Magnussen																				X																															
66 UK 01	Model to determine Government Grants and Loan Sanctions to Local Government Mr. Hillhouse																												X																							
67 TUR02	Cost Model for Turkish Higher Education Mr. Eide									X																																										

TABLE 6. COMPREHENSIVE - EXTERNALLY LINKED

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:								TO DETERMINE THE EFFECTS OF:														
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
68 AUS02	A Cost-Minimisation Student Flow-Model, adaptive to Annually determined Manpower Requirements Dr. Clement																														X																					
69 CAN10	Calculation of Educational Stocks and Productivity of Educated Manpower Mr. Illing																	X											X																							
70 US 08	Washington Center for Metropolitan Studies City I Mr. Clary																																				X															
71 US 11	A Dynamic Linear Programming Model for Educational Planning with Application to Morocco Dr. Gelladay																														X																					
72 FRA01	General Optimization Model for the Economy and the Educational System Mr. Etteri Mr. Manuel																																																			
73 FRA07	Educational and Manpower Sections of the Sixth French Plan Mr. Métais																														X																					
74 NOR11	Model of Educated Manpower Input per Unit of Intermediate and Final Outputs Mr. Kobberstad															X																																				

TABLE 6. COMPREHENSIVE - EXTERNALLY LINKED (Contd.)

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:							TO DETERMINE THE EFFECTS OF:															
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
75 NET03	Short-term Forecasting Model for the Netherlands Educational System Mr. Passenier Mr. Theolen																X	X	X				X						X																							
76 NET04	Medium-Term Forecasting Model for the Netherlands Educational System																X	X	X				X						X																							
77 NE 05	Long-Term Forecasting Model for the Netherlands Educational System Mr. Passenier Mr. Theolen																X				X	X							X																							
78 POR01	Simulation Model of the Portuguese Educational System Mr. Garcia																																					X								X	X					X
79 JAP03	Nation-wide Regional Econometric Model Mr. Ohkita																				X								X																							
80 JAP08	Historical Analysis of the Numbers of Students in Higher Education in Six Countries Mr. Ushiogi															X																																				
81 INT01	Generalised Simulation Model of an Educational System and Its Relation to the Manpower System (Castasia) Mr. Solomon Mr. Auerhan																																					X														X
82 INT03	Global Accounts for Manpower and Education (G.A.M.E.) Model Dr. Khan Dr. LeVasseur																																				X															

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS								SIMULATION MODELS														
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:								TO DETERMINE THE EFFECTS OF:														
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
83 GER02	Student Forecasting Model, carrying through into First Employment Dr. Alex																X	X	X	X	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	X																							
84 GER11	A Manpower Supply Model for Baden-Württemberg Dr. Ottwaska																														X																							
85 BEL01	Forecasting Future Qualified Manpower Needs Prof. Feldheim																											X	X																									
86 BEL04	Analysis of the Supply of University Graduates Dr. Swaelen																	X											X																									
87 BEL06	Needs of the Economy for University Graduates to 1980 Dr. Desaeyere							X																																												
88 CAN11	Manpower Supply Model for Canada Mr. Pankhurst																												X																									
89 CAN12	Manpower Requirements Model for Canada Mr. Pankhurst																											X																										
90 FRA03	Calculation of the Educational Stock embodied in the French Active Population Mr. Debeauvais																												X																									
91 FRA06	Fifth Plan Manpower Demand Model Mr. d'Hugues																											X																										
92 ITA01	Demand and Supply of Graduates of Higher Education in Italy Mr. Cacace Mr. d'Ambrosio																											X	X																									

TABLE 7. MANPOWER LINKED (Contd.)

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:								TO DETERMINE THE EFFECTS OF:														
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93 NOR04	Long-Term Manpower Demand Model Mr. Nygaard																										X																									
94 NET06	Assessment of the Supply of Highly Skilled Personnel Mr. Passenier Mr. Theolen																X	X		X																																
95 UK 15	Integrated Set of Education and Manpower Models Miss Weatherburn																X	X	X	X									X																							
96 TUR01	Long-Term Iterative Forecasting Model for Manpower Needs of the Economy Mrs. Kismir Mrs. Onsan Mrs. Sey																X											X																								
97 JAP01	Supply and Demand Model of Graduates Beyond the Compulsory Level Mr. Wakana																	X		X								X	X																							
98 JAP02	Forecasting Model for Manpower Supply Mr. Ohta																	X	X	X									X																							
99 JAP04	Forecasting Model for the Demand for Vocationally-trained Skilled and Semi-Skilled Workers Mr. Ogura																										X																									
100 [illegible]01	The Development of Education in Yugoslavia in the Period 1966-1970 and its Adaptation to the Needs of the Economy and Society Mr. Koricancić																													X																					

TABLE 8. RETURNS TO EDUCATION

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:							FOR TRAINING ONLY	TO DETERMINE THE EFFECTS OF:														
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
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101 US 01	Contribution of Educational Inputs to Economic and non-Economic Behavioural Outputs Mr. Juster															X																																				
102 US 02	The Effect of Education on Economic Variables Mr. Becker															X																																				
103 UK 07	Rates of Return to Different Types and Levels of Education with Detailed Information on the Electrical Engineering Industry Prof. Blaug															X																																				
104 JAP07	Decision Model of the Optimal Amount of Education for Individuals Mr. Oniki												X																																							

TABLE 9. INSTITUTIONAL

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:							TO DETERMINE THE EFFECTS OF:															
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
105 GER01	A University Capacity Model Mr. Heim																																		X																	
106 GER08	A University Capacity Model Mr. Frey																									X	X																									
107 GER14	Model of University Enrolment and Output for Schleswig Holstein Mr. Schmidt																X	X																																		
108 BEL03	Generalised University Facilities Planning Model Dr. Swaelen																																									X				X			X			
109 BEL07	A Student Forecasting Model for Universities Prof. Meulepas																X																																			
110 CAN04	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges Mr. Judy Mr. Levine																																					X				X				X	X		X			
111 CAN05	•																																					X				X				X	X		X			
112 CAN06	•																																					X				X				X	X		X			
113 DEN01	A Simulation Model for Analysing Class Sizes in Teacher Training Colleges Mr. Rasmussen																																					X				X									X	
114 FRA05	Budgetary Allocation and Student Orientation Model for the Faculty of Sciences at Grenoble Mr. Montagnat																															X		X																		

TABLE 9. INSTITUTIONAL (Contd.)

SERIAL NUMBER AND CODE	Title of the model and name of respondent	DESCRIPTIVE MODELS															FORECASTING MODELS													DECISION MODELS							SIMULATION MODELS															
		ONLY TO DESCRIBE:					TO EXPLAIN:										TO PROVIDE FORECASTS OF:													TO SOLVE FOR THE VALUES OF VARIABLES FOR:							TO DETERMINE THE EFFECTS OF:															
																														GLOBAL DECISIONS		PARTIAL DECISIONS						ALTERNATIVE						UPON								
		The Total Educational System	Student Stocks and Flows	Budget Processes and Financial Systems	Teaching Staff and Other Personnel	Capital Stocks and Other Physical Facilities	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Demand for Places	Availability of Places	Employment Choices	Relationships between Educational and Economic Variables	Enrolments	Production of Graduates	Success Rates and/or Drop-outs	New Entrants	Costs and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Demand for Places	Availability of Places	Manpower Requirements	Manpower Availabilities	Education Sector Only	Inter-Sectoral (Education, Manpower and/or Economy)	Allocation of Students	Allocation of Teachers	Allocation of Physical and/or Financial Resources	Optimal Size	Time-Phasing of Decisions	FOR TRAINING ONLY	Enrolments	Success Rates and/or Drop-outs	Student/Teacher Ratios	Teacher Salaries	Teaching Programmes and/or Schedules	Examination Procedures	Enrolments	Production of Graduates	Cost and/or Expenditures	Teacher Requirements	Teacher Availabilities	Facility Requirements	Facility Availabilities	Class Sizes	Manpower Availabilities
115 IRE04	Analysis of Curriculum Options and their Relationship to Institutional Characteristics and Inputs Mr. Hyland												X	X																																						
116 NOR08	Model for Calculation of Current Costs in Universities - I. Mr. Magnussen							X																																														
117 NOR09	Model for Calculation of Current Costs in Universities - II. Mr. Magnussen				X																																																	
118 NET01	Latent Factor Analysis of the Numerical Yield of the Rotterdam School of Economics Prof. Begeer																																										X		X							
119 NET02	Description of the Selection Process at the Rotterdam School of Economics Prof. Begeer							X																																														
120 UK 08	Measurement of Productivity of Educational Institutions (Higher, Secondary and Primary) Prof. Blaug							X																																														
121 US 05	Model of Student Achievement as a Function of Teacher and School Characteristics Mr. Parti																																X																			
122 US 10	Determinants of the quality of Higher Education Mr. Froomkin							X																																														

ANNEX 3

LIST OF DOCUMENTS

COMPREHENSIVE EDUCATION

Serial No.	Model Code	Author	Documents
1	GER 13	*SCHMITZ, Enno	Die öffentlichen Ausgaben für Schulen in der Bundesrepublik Deutschland, 1965-1970 (Public Expenditures for Schools in the Federal Republic of Germany, 1965-1970), Bildungskommission des Deutschen Bildungsrates. Stuttgart. Ernst Klett Verlag. July, 1967. 93 Pages.
		*SCHMITZ, Enno	Projektionen der Bildungsausgaben bis 1975" (Projections of the Expenditures in Education until 1975). Deutscher Bildungsrat. Gutachten und Studien der Bildungskommission No.5. Stuttgart, 1969. Pages 127-170.
2	UK 05	*STONE, Richard	"Input-Output and Demographic Accounting: A Tool for Educational Planning". Minerva, IV, No.3 (Spring,1966), pages 365-380.
		*STONE, Richard STONE, Giovanna GUNTON, Jane	"An Example of Demographic Accounting: The School Ages". Minerva, Vol. VI, No.2 (Winter, 1968), pages 185-212.
		*STONE, Richard	"Demographic Input-Output: an Extension of Social Accounting". Geneva, Fourth International Conference on Input-Output Techniques, January, 1968. Mimeograph, 23 pages.
		*STONE, Richard	"Demographic Accounting and Model Building, with Special Reference to Learning and Earning Activities". Paris, OECD, Directorate for Scientific Affairs, February, 1969. Mimeograph, 142 pages.
3	UK 06		Internal papers of the Higher Education Research Unit, London School of Economics (formerly Unit for Economic and Statistical Studies on Higher Education)
			(1) "London School of Economics and Political Science - Advisory Board, Progress Report, July 1966-February, 1968". 1st March 1968. Mimeograph, 39 pages.
		*PHILLIPS, Celia	(2) "Computable Model of the Educational System. Work on 15-19 year-olds", 8th April 1968. Mimeograph, 3 pages.
		WILLIAMS, G.L.	(3) "A Computable Model of the Educational System", 15th May 1968. Mimeograph, 2 pages.
		WILLIAMS, G.L.	(4) "Computable Model of the Educational System: Visit to Kings College Research Centre on 22nd May 1968". Mimeograph, 2 pages.
		WILLIAMS, G.L.	(5) "Computable Model of the Educational System: Programme of Work until April 1970", 11th June 1968". Mimeograph, 7 pages.
		PHILLIPS, Celia	(6) "Computable Model of the Educational System; Social Demand Approach to the Model", 13th June 1968. Mimeograph, 6 pages.
			(7) "The Manpower Requirements Model: Tentative Formulation of Fairly Aggregated Version of the Model". Mimeograph, 6 pages.
		NORDELL, L.P.	(8) "Computable Model of the Educational System: Optimising Models for Education in Great Britain", 2nd July 1968. Mimeograph, 7 pages.
		WILLIAMS, G.L.	(9) "Computable Model of the Educational System: The Student Flow Projection Model", 9th July 1968. Mimeograph, 3 pages.
		WILLIAMS, G.L. SMITH, C. NORDELL, L.P.	(10) "Computable Model of the Educational System: Manpower Planning Models, Continued", 18th July 1968. Mimeograph, 5 pages.

COMPREHENSIVE EDUCATION (cont.)

Serial No.	Model Code	Author	Documents
3 (cont.)	UK 06		(cont.) Internal papers of the Higher Education Research Unit, London School of Economics (formely Unit for Economic and Statistical Studies on Higher Education).
		HEWLETT, C., *PHILLIPS, C.,	(11) "Computable Model of the Educational System: Some Projections of Sixth Form School Leavers", 24th July, 1968. Mimeograph, 19 pages.
		WILLIAMS, G.L. *PHILLIPS, C. *ARMITAGE, P.H.	(12) Model of the Educational System: A Sub-Model of the English Educational System - 15-19 year olds", 7th November, 1968. Mimeograph, 31 pages.
		DAVIES, Judith	(13) "Computable Model of the Educational System: Science Teaching in I.L.E.A.", 3rd December, 1968. Mimeograph, 6 pages.
			(14) "The Dependence of Transition Proportions on Socio-Economic factors (Preliminary Analysis of the Douglas Data)", 20th December, 1968. Mimeograph, 18 pages.
		DAVIES, Judith	(15) "Manpower Model", 13th January, 1969. Mimeograph, 4 pages.
		CRAMPIN, A.	(16) "Quantifiable Educational Objectives", 15th January, 1969. Mimeograph, 42 pages.
		*PHILLIPS, Celia	(17) "A Note on the Effect on University Entry of the Number and Grade of 'A' Level of Qualified Applicants", 13th March, 1969. Mimeograph, 7 pages.
		*ARMITAGE, P.H.	(18) "Notes on the 15-19 Sub-Model", 5th May, 1969. Mimeograph, 16 pages.
			(19) "Development, Present Situation and Future Plans" Mimeograph, 8 pages.
		*ARMITAGE, P.H., CRAMPIN, A.	(20) "Some Tables on 'O' and 'A' Level Examinations" 3rd July, 1969. Mimeograph, 10 pages and Tables.
		CRAMPIN, A., DAVIES, J.	(21) "Educational Parameters for the 1980's ('Carter Study')", 3rd July, 1969. Mimeograph, 18 pages.
			(22) "Douglas Survey Data: Basic Information on 'O' and 'A' Level Performance", July, 1969. Mimeograph, 18 pages.
			(23) "London School of Economics and Political Science - Development". November, 1968. Mimeograph, 14 pages.
		LAYARD, R., KING, P.	"The Impact of Robbins", Higher Education Review, Vol.1, No.1, 1968. Pages 7-25.
		ALPER, P., SMITH, C.S.	"An Application of Control Theory to a Problem in Educational Planning", IEEE Transactions on Automatic Control, April, 196[illegible]. 3 pages.
		ALPER, P.	"Introduction of Control Concepts in Educational Planning Models". Mathematical Models in Educational Planning. Paris, O.E.C.D., 1967. Pages 259-273.
		MISHAN, Edward J.	"Some Heretical Thoughts on University Reform", Encounter, March, 1969. Pages 3-15.
		*ARMITAGE, P., SMITH, C.	"The Development of Computable Models of the British Educational System and their Possible Uses". Mathematical Models in Educational Planning. Paris, O.E.C.D., 1967. Pages 159-205.
4	US 09		Projections of Educational Statistics to 1976-77, 1967 Edition. Washington Office of Education, U.S. Government Printing Office, 1968. 122 pages.
5	YUG 02		"Pert-Method for Pilot Project in Secondary School Reform in the Republic of Serbia". Belgrade, Economic Institute. Mimeograph.

COMPREHENSIVE EDUCATION (cont.)

Serial No.	Model Code	Author	Documents
6	INT 02		NONE
7	GER 0[illegible]		STUDENT FLOW SYSTEM Ausbau der Höheren Schule und der Realschule (Development of the Gymnasium and the Realschule). A. Henn Verlag, Ratingen, Schriftenreihe des Kultusministers des Landes Nordrhein-Westfalen, No.5, 1967. 45 pages, and tables. Ausbau des Gymnasiums und der Realschule (Development of the Gymnasium and the Realschule). A. Henn Verlag, Ratingen, Schriftenreihe des Kultusministers des Landes Nordrhein-Westfalen, No.5, 1967. 51 pages, and tables. Statistik des Bildungswesens 1950-1975 ("Statistics of the Educational System 1950-1975"). A. Henn Verlag, Ratingen, Schriftenreihe des Kultusministers des Landes Nordrhein-Westfalen, No.6, 1968. 133 pages. Empfehlungen I des Planungsbeirates für das Hochschulwesen (Recommendations of the Planning Council for the Higher School System). A.Henn Verlag, Ratingen, Schriftenreihe des Kultusministers des Landes Nordrhein-Westfalen, No.7, January, 1969. 140 pages, and tables. Beiträge zur Hochschulplanung (Suggestions for Planning Higher Education). A.Henn Verlag, Ratingen, Schriftenreihe des Kulusministers des Landes Nordrhein-Westfalen, No.8, January, 1969. 140 pages, and tables. Kulturatlas des Landes Nordrhein-Westfalen (Collection of Maps regarding the Educational System in Nordrhein-Westfalen). A.Henn Verlag, Ratingen, Schriftenreihe des Kultusministers des Landes Nordrhein-Westfalen.
8	GER 07	*SCHMITTLEIN, K. *SCHMITTLEIN,K.	Berechnungsmodell für Schüler-Vorausschätzungen (Calculating Model for Pupil Forecasting). Stuttgart Ernst-Klett Verlag, 1969. 73 pages. "Neue Schülervorausschätzung in Bayern" ("New Pupil Forecasting in Bavaria"). Munich, Staatsinstitut for Educational Investigation and Planning, July, 1969. Mimeograph, 3 pages.
9	AUS 01		NONE
10	BEL 02	VAN DER MAERT, J. *MEULEPAS, E., de LANOO, I.	Set of Tables DSS/69/1, Dienst voor de Statistiek, January, 1969. "Nieuwe Prognoses voor de Universitaire Studentenbevolking" (New Forecasts of the University Student Population), Tijdschrift voor Economie, No.2, 1967,pages 94-115. Computer Program and Sample Output of University Enrolment Forecasting Model
11	CAN 08	WHITTINGHAM, Frank, D. LAGACE, Michel D.	Survey of Higher Education, Part I: Fall Enrolment in Universities and Colleges 1967/68. Dominion Bureau of Statistics, Education Division. Ottawa, Nov. 1968. 62 pages. Advance Statistics of Education-Statistique de l'Enseignement - Estimation 1968-69 (Bilingual Report) Dominion Bureau of Statistics, Education Division, August 1968. 11 pages. "Educational Attainment of the Canadian Population and Labour Force: 1960-1965" Special Labour Force Studies, No.1. Dominion Bureau of Statistics Labour Division, October, 1966. 40 Pages. "Educational Attainment in Canada: Some Regional and Social Aspects". Special Labour Force Studies No.7. Dominion Bureau of Statistics, Special Manpower Studies and Consultation Division, October, 1968. 53 Pages.

STUDENT FLOW SYSTEM (cont.)

Serial No.	Model Code	Author	Documents
12	CAN 09	*ILLING, W.M., ZSIGMOND, Z.E. *ILLING, W.M.	Enrolment in Schools and Universities, 1951-52 to 1975-76, Staff Study No.20, Economic Council of Canada, October 1967, 166 pages. Population, Family, Household and Labour Force Growth to 1980, Staff Study No. 19, Economic Council of Canada, September, 1967. 101 pages. Conseil Economique du Canada - Rapport Annuel, 1967-68 (Report of the Economic Council of Canada 1967-68) (Bilingual), Ottawa, 1968. 26 pages. "The Sources of Potential Output in the Canadian Economy, 1946-80 (A Production Function Analysis) preliminary, staff working paper, April, 1968. 113 pages.
13	US 13	*LEWIS, J.C. *LEWIS, J.C.	"Demonstration of Application of Cohort Ar[illegible] Technique for Projecting Enrolment and De[illegible]", Science Education Studies Group, Nation[illegible] Foundation, February, 1969. Preliminary. Excerpts and Samples from Matrices, Washington, Science Education Studies Group, National Science Foundation, February, 1969.
14	IRE 02		NONE
15	IRE 03		NONE
16	IRE 05		NONE
17	IRE 06		NONE
18	ICE 01	*BENEDIKTSSON, Oddur	A Programmed Approach to Measure and Change the Output Structure of an Educational System, Reykjavik, University of Iceland Computing Center, September, 1968. 22 pages. Athugun á námsferli stúdenta við háskóla Islands árin 1950-1965 (A Survey of the Progress of Studies at the University of Iceland 1950-1965), Reykjavik, The Economic Institute, November, 1966. 19 pages, Annex, with Tables. "Kaflar úr v ntanlegri Menntamálaá tlun" (The Forthcoming Educational Programme), Reykjavik, The Economic Institute, December, 1968. 31 Pages.
19	NOR 01	*BIRKELAND, Eva VANGSNES, S.	A Model for Predicting Educational Enrolment and Output in the Post-Secondary Educational System of Norway, Oslo, The Norwegian Research Council for Science and the Humanities, Research Department, August, 1967. 27 pages. "An Analysis of Some Background Factors Affecting the Recruitment and Achievement of Students Enrolled for Examen Artium in Norway". Oslo, The Norwegian Research Council for Science and the Humanities, Research Department, Report No.1, 1967. Mimeograph, 10 pages.

STUDENT FLOW SYSTEM (cont.)

Serial No.	Model Code	Author	Documents
19 (cont.)	NOR 01	*BIRKELAND, Eva	Utredninger om forekning og hoyere utdanning (A Model for Predicting Future Enrolment, Graduation and Output in the Post-Secondary Educational System of Norway). Oslo, The Norwegian Council for Science and the Humanities, Report No.2, 1967. 134 pages.
20	NOR 03	*THONSTAD, Tore *THONSTAD, Tore	Education and Manpower: Theoretical Models and Empirical Applications. Edinburgh and London, Oliver and Boyd, 1969. 162 pages. " A Mathematical Model of the Norwegian Educational System" Mathematical Model in Educational Planning. Paris, OECD, Directorate for Scientific Affairs, 1967. Pages 125-158.
21	NOR 05		En enkel programmeringsmodell for studentallokering (A Simple Programming Model for Student Allocation). Oslo Institut of Economics, University of Oslo, February, 1969. 43 pages .
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Serial No.	Model Code	Author	Documents
96	TUR 01		"Educational Planning Process and Mechanism in Turkey", Ankara, State Planning Organisation, Unit for Education and Research. Mimeograph, 8 pages, and Annex. "Educational Model of Turkey"; Used in the Second Five-Year Development Plan,1963-1972", Ankara, State Planning Organisation, Unit for Education and Research. Mimeograph, 7 pages. "Recent Developments in Educational Policy and Planning", Ankara, State Planning Organisation Coordination Department. Mimeograph, 8 pages, and Annex. "Turkey - Description of School System", Photocopy, (source unknown). Pages 295-311.
97	JAP 01		"Estimation of the Number of Entrants to and Graduates from Different Levels of Education during the Five Years 1967-1971". Tokyo, Ministry of Education, Research Section, August, 1967. Mimeograph, 10 pages. "Estimation of the Demand for and the Supply of Graduates from Different Levels and Fields of Education during the Five years 1964-1968". Tokyo, Ministry of Education, Research Section, August, 1967. Mimeograph, 22 pages.
98	JAP 02	*OHTA, Masao	The National Institute for Educational Research, 1968/69, Tokyo, 15 pages. "Development and Demand-Supply Relationship of Human Resources." Tokyo, Bulletin of the National Institute for Educational Research, No.61, March, 1968. 45 pages.
99	JAP 04		1960 Population Census of Japan, Volume 2: One Percent Sample Tabulation, Part 2: Migration, Tokyo, Office of the Prime Minister, Bureau of Statistics, February, 1962, 209 pages.
100	YUG 01		Stanje i perspektive u oblasti kadrova i elementi politke obrazovanja (Situation and Prospects within the Teaching Personnel and Political Aspects of Education). Zagreb University, Social Research Institute, 1964. 81 pages, and Tables. Razvoj skolstva i obrazovania od 1964-1970 (Development of Schools and Education from 1964 to 1970). Zagreb University, Social Research Institute, 1964. 142 pages, and Tables. "The Development of Education in Yugoslavia in the Period 1966-1970 and its Adaptation to the Needsof the Economy and Society". Paris, OECD, Directorate for Scientific Affairs, December, 1966. Mimeograph, 197 pages. Appendix to the above document: Statistical Tables. Paris. OECD, Directorate for Scientific Affairs, November, 1966. Mimeograph, 67 pages.
		RETURNS TO EDUCATION	
101	US 01		NONE
102	US 02		NONE
103	UK 07	*BLAUG; M *BLAUG, M. *BLAUG, M. *BLAUG, M., PESTON, M.H., ZIDERMAN	"The Rate of Return on Investment in Education in Great Britain". The Manchester School, Series No.5, September, 1965. Pages 205-261. "An Economic Interpretation of the Private Demand for Education," Economica, May, 1966, Pages 166-182. "Comparative Analysis of Educational Expenditure in Member Countries since 1950". Paris, O.E.C.D., Directorate for Scientific Affairs, March, 1969. Mimeograph, 14 pages. The Utilisation of Educated Manpower in Industry. London, Oliver and Boyd..
104	JAP 07	*ONIKI, H.	"A Note on Deriving the Demand Function for Educational Investment", Tohoku University, Department of Economics, 1967.

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Serial No.	Model Code	Author	Documents
104 (cont.)	JAP 07	*ONIKI H. *ONIKI, H.	"A Theoretical Study on the Demand for Education", Tohoku University, Department of Economics, January, 1968. Preliminary draft, 150 pages. "A Theoretical Study on the Demand for Education: Summary", Tohoku University, Department of Economics, July, 1968, Mimeograph, 3 pages.
		INSTITUTIONAL	
105	[illegible]R 01		4 mimeographs about models for mathematics, physics, chemistry and biology.
106	GER 08	BRAUN, H., HAMMER, G., SCHMID, K.	"Ein Verfahren zur Ermittlung der Ausbildungskapazität wissenschaftlicher Hochschulen" ("A Procedure for Discovering the Training Capacity of Scientific Institutions of Higher Education"). Mimeograph, 29 pages.
107	GER 14	JOCHIMSEN, R., *SCHMIDT, V.	"Abiturientenbefragungen als Grundlage regionaler Universitätsplanung" (Enquiries of Abitur Graduates as a Basis of Regional University Planning). Christiana Albertina, Kieler Universitäts-Zeitschrift, No.6, November, 1968. Pages 25-34.
108	BEL 03		Computer Programme and Sample Output of University Enrolment Forecasting Model.
109	BEL 07		NONE
110 111 112	CAN 04 CAN 05 CAN 06	*JUDY, R.W.	IQASEP Newsletter, Institute for the Quantitative Analysis of Social and Economic Policy, University of Toronto, Nos. 1 and 2, 1968. Systems Analysis for Efficient Resource Allocation in Higher Education", Institute for the Quantitative Analysis of Social and Economic Policy, University of Toronto, November, 1968. Mimeograph, 35 pages.
113	DEN 01		Planlaegning af seminariestrukturen (Planning of the Seminar Structure). Institutet for Matematisk Statistik og Operationsanalyse, Danmarks Tekniske Hojskole, Lyngby, December, 1968. 38 pages.
114	FRA 05	*MONTAGNAT, F.	"Projet d'Enquête sur les Débouchés" (Project for investigating occupational outlets), Grenoble, February, 1969. Mimeograph, 4 pages, and Annex.
115	IRE 04		NONE
116	NOR 08	*MAGNUSEN, O.	"Modeller for beregning av driftskostnadene ved et universitet" (Models for Calculation of Working Expenses at a University). Oslo, Ministry of Education, Research and Planning Department, 1969. Mimeograph, 26 pages.
117	NOR 09	*MAGNUSEN, O.	"A Model for the Estimation of Current Costs at an Institution of Higher Learning". Paris, OECD, Directorate for Scientific Affairs, April, 1969. Mimeograph, 13 pages. "En Modell for universitetets driftskostnader" (A Model for University Expenditures). Oslo, Ministry of Education, Research and Planning Department, 1968. Mimeograph, 12 pages.

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Serial No.	Model Code	Author	Documents
118	NET 01	*BEGEER, W.	Numeriek Rendement (Numerical Yield), Wolters-Noordhoff N.V. Groningen, 1968. 256 pages. Het Eerste Examen in Drie Faculteiten 1968 (The First Exam in the Three Faculties, 1968). Rotterdam, Netherlands School of Economics, November.1968. 24 pages.
119	NET 02		(See The Netherlands Model 1)
120	UK 08	WOODHALL, Maureen, *BLAUG, M *BLAUG, M. WOODHALL, Maureen	"Variations in Costs and Productivity of British Primary and Secondary Education". Mimeograph,27 pages. "Productivity Trends in British Secondary Education 1950-1963". Sociology of Education, Winter, 1968. Pages 11-35 "Universities and Productivity". Background papers, Joint Consultative Committee of the Vice Chancellors' Committee and the Association of University Teachers. 21 March, 1968. Pages 19-28.
121	US 05	*FARTZ, M.	"A Least-Cost Method for Achieving Equality of Educational Opportunity in Ghetto Schools: A Simultaneous Approach". North Western University, Evanston, December, 1968. Mimeograph, 5 pages.
122	US 10		"Determinants of quality of higher education", Washington, Office of Program Planning and Evaluation, U.S. Office of Education. Mimeograph (restricted), 37 pages.

ANNEX 4

LIST OF RESPONDENTS

LIST OF RESPONDENTS

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. ALEX Battelle Institut Angewandte Wirtschafts-forschung Wiesbadnerstrasse Frankfurt, GERMANY	Student Forecasting Model, Carrying Through into First Employment	Int. Org.	83	GER 02
M. Mario d'AMBROSIO Istituto di Studi Sulle Relazioni Industriali et di Lavoro (ISRIL) Via Velletri 24 Rome, ITALY	Demand and Supply of Graduates of Higher Education in Italy	Non-Gov.	92	ITA 01
Mr. Peter ARMITAGE Higher Education Research Unit London School of Economics Houghton Street London W.C.2, ENGLAND	Model of Student Flows in the British Educational System With Emphasis on the Post-Secondary Level to Higher Education Movements	U.	3	UK 06
Mr. J. AUERHAN Human Resources Analysis Division UNESCO 2, Place Fontenoy Paris 7e, FRANCE	Generalised Simulation Model of an Educational System and its Relation to the Manpower System	Int. Org.	81	INT 01
Professor G.A. BARNARD Department of Mathematics University of Essex Wivenhoe Park Colchester, ENGLAND	Factors Influencing Choice of Higher Education	U.	37	UK 11

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. Alan E. BAYER Office of Research American Council of Education 1785 Massachusetts Ave., N.W. Washington, D.C. U.S.A.	Student and Resource Inputs to Higher Education and Their Effect on Output	Non-Gov.	58	US 06
Dr. Gary BECKER National Bureau of Economic Research 261 Madison Avenue New York, New York U.S.A.	The Effect of Education on Economic Variables	Non-Gov.	102	US 02
Professor W. BEGEER Netherlands School of Economics Kralingse Dreef 50 Rotterdam, NETHERLANDS	Latent Factor Analysis of the Numerical Yield of the Rotterdam School of Economics Description of the Selection Process at the Rotterdam School of Economics	U.	118 119	NET 01 NET 02
Dr. Oddur BENEDIKTSSON University Computer Laboratory Dunhaga 3 Reykjavik, ICELAND	An Approach to Measure and Change the Output Structure of an Educational System	U.	18	ICE 01
Mr. BENNETT Chief Inspector of Schools Scottish Education Department St. Andrew's House Edinburgh 1, SCOTLAND	Teacher Demand Model for Scotland	Prin. Gov.	47	UK 04
Mrs. Eva BIRKELAND Institute for Studies in Research and Higher Education The Norwegian Research Council for Science and the Humanities Akersgate 49 Oslo 1, NORWAY	A Model for Predicting Educational Enrolment and Output in the Post-Secondary Education System of Norway A Higher Education Resource (Cost) Model	Other Gov.	19 63	NOR 01 NOR 02

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. John BISHOP Assistant Professor Department of Economics Washington Square College New York University New York, New York U.S.A.	Model of Sectoral Demand for Public and Private Higher Education	U.	33	US 03
	The Optimal Pattern of Subsidy of Undergraduate Education When Growth and Redistribution Are Part of the Objective Function		57	US 04
Professor Mark BLAUG Research Unit in the Economics of Education London University Institute of Education Malet Street London W.C.2, ENGLAND	Rates of Return to Different Types and Levels of Education with Detailed Information on the Electrical Engineering Industry	U.	103	UK 07
	Measurement of Productivity of Educational Institutions (Higher, Secondary and Primary)		120	UK 08
M. Nicola CACACE Istituto di Studi Sulle Relazioni Industriali et di Lavoro (ISRIL) Via Velletri 24 Rome, ITALY	Demand and Supply of Graduates of Higher Education in Italy	Non-Gov.	92	ITA 01
Mr. John CANTWELL Operations Research Unit Department of Finance Upper Merrion Street Dublin 2, IRELAND	A Generalized Method for Allocating Academic Departments to Alternate, Separate Sites	Other Gov.	61	IRE 07
Mr. Allan M. CARTTER Chancellor New York University Washington Square New York, New York U.S.A.	The Supply and Demand for College Teachers	U.	42	US 12

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. Thomas CLARY Office of Construction Services United States Office of Education Washington, D.C. U.S.A.	Washington Center for Metropolitan Studies, City I	Prin. Gov.	70	US 08
Dr. W. CLEMENT Institut für Wolkswirtschaftslehre und Weltwirtschaftslehre A-1190 Wien Franz-Klein-Gasse 1, AUSTRIA	A Cost-Minimisation Student Flow Model, Adaptive to Annually-Determined Manpower Requirements	Prin. Gov.	68	AUS 02
Professor Bernardo COLOMBO Facolta di Scienze Statistiche University of Padua Padua, ITALY	Allocation of Teaching Personnel in the Italian Universities	U.	44	ITA 02
M. DALIX Bureau de la Carte Scolaire Ministère de l'Education Nationale 107, rue de Grenelle Paris 7e, FRANCE	Planning Model of Construction Needs and Location of Comprehensive Lower Secondary Schools	Prin. Gov.	60	FR 02
M. Michel DEBEAUVAIS Institut d'Etudes du Developpement Economique et Social (I.E.D.E.S.) 58, Boulevard Arago Paris 13e, FRANCE	Calculation of the Educational Stock Embodied in the French Active Population	U.	90	FR 03
Mr. W. DESAEYERE Centrum voor Economische Studiën E. Van Evenstraat 2B Louvain, BELGIUM	Needs of the Economy for University Graduates to 1980	U.	87	BEL 06

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. P.A. DORING Deutsches Institut für Internationale Pädagogische Forschung 6 Frankfurt/Main 90 Schloss Strasse 29-31 GERMANY	A Model for Optimizing Teacher Utilization	Non-Gov.	40	GER 12
Mr. Kjell EIDE The Royal Ministry for Church and Education Department of Research and Planning Bygdøy Alleé 5 Oslo Dep., NORWAY	Cost Model for Primary Education	Prin. Gov.	64	NOR 06
	Study on the Demand for and Supply of Teachers		45	NOR 10
	Cost Model for Turkish Higher Education		67	TUR 02
M. François ETTORI Centre d'Etudes Prospectives et d'Economie Mathématique Appliquée à la Planification 29, avenue du Général LeClerc Paris 14e, FRANCE	General Optimization Model for the Economy and the Educational System	Non-Gov.	72	FR 01
Mr. William FEARNLEY Chief Statistician Statistics, Finance and Planning Division Scottish Education Department St. Andrew's House Edinburgh 1, SCOTLAND	Student Forecasting Model for Scotland	Prin. Gov.	22	UK 02
	Teacher Supply Model for Scotland		46	UK 03
Professor P.A. FELDHEIM Centre d'Etude des Problèmes Sociaux et Professionnels de la Technique 44, avenue Jeanne Bruxelles 5, BELGIUM	Forecasting Future Qualified Manpower Needs	U.	85	BEL 01

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. N.D. FRANCIS School of Engineering Trinity College Dublin, IRELAND	An Educational Flow Forecasting Model	U.	16	IRE 05
	Control Concepts in Computer Aided Educational Planning		17	IRE 06
Mr. Birger FREDRIKSEN Administrator Centre for Educational Research and Innovation (C.E.R.I.) O.E.C.D. 2, rue André-Pascal Paris 16e, FRANCE	Model for Determining the Optimum Allocation of Entrants to Post-Secondary Education	Int. Org.	21	NOR 05
Mr. FREY Kultusministerium Baden-Württemberg 4 Gaisburgerstrasse Stuttgart, GERMANY	A University Capacity Model	Prin. Gov.	106	GER 08
Dr. Joseph FROOMKIN Assistant Commissioner for Education Office of Program Planning and Evaluation U.S. Office of Education Washington, D.C. U.S.A.	Determinants of the Quality of Higher Education	Prin. Gov.	122	US 10
M. Alain GIRARD Institut d'Etudes Démographiques 23, avenue Franklin Roosevelt Paris 8e, FRANCE	Educational Selection and Orientation from the 6ème to the 2ème	Non-Gov.	36	FR 08
Dr. Frederick L. GOLLADAY Department of Economics University of Wisconsin Madison, Wisconsin U.S.A.	A Dynamic Linear Programming Model for Educational Planning with Application to Morocco	U.	71	US 11

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. Kenneth GROOM Director of Educational Research Local Government Operational Research Unit 201 King's Road Reading, ENGLAND	General Models for Pupil Forecasting for Local Government Authorities with Application to Three Local Authorities	Non-Gov.	23	UK 09
	Factors Affecting Staying on at School (Past Compulsory Leaving Age) at the Local Government Authority Level		24	UK 10
Diplom-Volkswirt HEIM Geschäftsstelle des Wissenschaftsrates Marienburgerstrasse 8 Köln-Marienburg, GERMANY	A University Capacity Model	Prin. Gov.	105	GER 01
Mr. Russell HILLHOUSE Principle in Charge of Finance Finance and Planning Division Scottish Education Department St. Andrew's House Edinburgh 1, SCOTLAND	Model to Determine Government Grants to Local Government Authorities in Scotland	Prin. Gov.	66	UK 01
Dr. Steven HOENACK Assistant Director Office of Analytical Studies University of California Berkeley, California U.S.A.	Demand for Higher Education as a Function of Family Income	U.	59	US 07
M. d'HUGUES Institut National d'Etudes Démographiques (INED) 217, rue du Faubourg St.-Honoré Paris 8e, FRANCE	Fifth Plan Manpower Demand Model	Other Gov.	91	FR 06
Mr. W. HUTMACHER Centre de la Recherche Sociologique du Canton Genève Rue de Lausanne 63-65 Geneva, SWITZERLAND	Teacher Supply and Demand Model for the Canton Geneva	Other Gov.	50	SWI 02

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. William HYLAND Development Branch Department of Education Marlborough Street Dublin 1, IRELAND	Secondary School Teacher Quota Model	Prin. Gov.	43	IRE 01
	Student Enrolment Model for Counties		14	IRE 02
	Local Student Enrolment Model		15	IRE 03
	Analysis of Curriculum Options and Their Relationship to Institutional Characteristics and Inputs		115	IRE 04
Mr. Wolfgang ILLING Economic Council of Canada Box 527 Ottawa, CANADA	Medium Term Forecasts of Educational Enrolment in Canada	Non-Gov.	12	CAN 09
	Calculation of Educational Stocks and Productivity of Educated Manpower		69	CAN 10
Dr. Richard JUDY System Research Group Institute for the Quantitative Analysis of Social and Economic Policy (IQASEP) University of Toronto 130 Bloor Street West Toronto 5, Ontario CANADA	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges	U.	110 111 112	CAN 04 CAN 05 CAN 06
Dr. F. Thomas JUSTER Vice-President for Research National Bureau of Economic Research, Inc. 261 Madison Avenue New York, New York U.S.A.	Contribution of Educational Inputs to Economic and Non-Economic Behavioral Outputs	Non-Gov.	101	US 01
Dr. Abdul G. KHAN Directorate for Scientific Affairs & Centre for Educational Research and Innovation (C.E.R.I.) O.E.C.D. 2, rue André-Pascal Paris 16e, FRANCE	Global Accounts for Manpower and Education (G.A.M.E. Model)	Int. Org.	82	INT 03

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mme. KISMIR State Planning Organisation Social Planning Department Unit for Education and Research Ankara, TURKEY	Long-Term Iterative Forecasting Model for Manpower Needs of the Economy	Prin. Gov.	96	TUR 01
Mr. Tøre KOBBERSTAD Institute of Economics University of Oslo Box 1095 Blindern Oslo, NORWAY	Model of Educated Manpower Input per Unit of Exports, Domestic Consumption and Investment for Norway	U.	74	NOR 11
Mr. Slavko KORIČANČIĆ Social Research Institute University of Zagreb Zagreb, YUGOSLAVIA	The Development of Education in Yugoslavia in the Period 1966 - 1970 and Its Adaptation to the Needs of the Economy and Society	U.	100	YUG 01
Eng. Antonio LEITE GARCIA Gabinete de Estudos e Planeamento da Acçao Educativa Avenida Infante Santo 68, 7° E Lisbon 3, PORTUGAL	Simulation Model of the Portuguese Educational System	Prin. Gov.	78	POR 01
Mr. N. LeSEELLEUR Dominion Bureau of Statistics Education Division 2401 Tunney's Pasture Ottawa, CANADA	Advance Estimates of School Enrolment in Canada	Gov. Stat.	11	CAN 08
M. Jean LESSARD Direction Générale de la Planification Ministère de l'Education 625 St. Amable Quebec, P. Quebec CANADA	Model for Allocation of Provincial Grants to Local School Districts	Prin. Gov.	56	CAN 13

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. Paul M. LeVASSEUR Centre for Educational Research and Innovation (C.E.R.I.) O.E.C.D. 2, rue André-Pascal Paris 16e, FRANCE	Global Accounts for Manpower and Education (G.A.M.E. Model)	Int. Org.	82	INT 03
Mr. Jack LEVINE System Research Group Institute for the Quantitative Analysis of Social and Economic Policy (IQASEP) University of Toronto 130 Bloor Street West Toronto 5, Ontario CANADA	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges	U.	110 111 112	CAN 04 CAN 05 CAN 06
Mr. Justin LEWIS Study Director Science Education Studies Group National Science Foundation 1800 G Street, N.W. Washington, D.C. U.S.A.	Demonstration of Application of Cohort Analysis Technique for Projecting Enrolment and Degree Data in Higher Education	Other Gov.	13	US 13
Mr. Alan LITTLE Research and Statistics Branch Inner London Educational Authority Greater London Council London County Hall London, ENGLAND	Student Forecasting and Teacher Mobility Models for the City of London	Prin. Gov.	48	UK 12

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. Olav MAGNUSSEN Administrator Educational Investment and Development Division O.E.C.D. 2, rue André-Pascal Paris 16e, FRANCE	Cost Model for Primary Education	Int. Org.	64	NOR 06
	Current Costs and Demand for Teachers in the Upper Level Secondary Schools and the Vocational Schools for Industry		65	NOR 07
	I. Models for Calculation of Current Costs in Universities		116	NOR 08
	II. Models for Calculation of Current Costs in Universities		117	NOR 09
M. Michel MANUEL Centre d'Etudes Prospectives et d'Economie Mathématique Appliquée à la Planification 29, avenue du Général LeClerc Paris 14e, FRANCE	General Optimization Model for the Economy and the Educational System	Non-Gov.	72	FR 01
Mr. William McREYNOLDS Ontario Institute for Studies in Education (OISE) Department of Educational Planning 102 Bloor Street West Toronto 5, Ontario CANADA	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario	U.	32	CAN 02
M. METAIS Service des Affaires Sociales Commissariat Général au Plan 30, rue Las Cases Paris 7e, FRANCE	Educational and Manpower Sections of the Sixth French Plan	Other Gov.	73	FR 07
Professor E. MEULEPAS Centrum voor Economische Studiën E. Van Evenstraat 2B Louvain, BELGIUM	A Student Forecasting Model for Universities	U.	109	BEL 07

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
M. MONTAGNAT Faculté des Sciences de Grenoble Domaine Universitaire 38, St. Martin d'Hères Grenoble, FRANCE	Budgetary Allocation and Student Orientation Model for the Faculty of Sciences at Grenoble	U.	114	FR 05
Mr. Leif Asbjørn NYGAARD Ministry of Finance Planning Division Akersgate 42 Oslo 1, NORWAY	Long-Term Manpower Demand Model	Other Gov.	93	NOR 04
Mr. Shuichiro OGURA Vocational Training Bureau Ministry of Labor 1-7 Ohtemachi Chiyoda-ku Tokyo, JAPAN	Forecasting Model for the Demand for Vocationally-Trained Skilled and Semi-Skilled Workers	Other Gov.	99	JAP 04
Mr. Yoichi OHKITA Econometric Division of the Planning Bureau Economic Planning Agency 3-1-1, Kasumigaseki Chiyoda-ku Tokyo, JAPAN	Nation-Wide Regional Econometric Model	Other Gov.	79	JAP 03
Mr. Masao OHTA Educational Planning Section National Institute for Educational Research 6-5-22, Shimomeguro Meguro-ku Tokyo, JAPAN	Forecasting Model for Manpower Supply	Prin. Gov.	98	JAP 02

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Professor Hajime ONIKI Department of Economics Tohiku University 25 Katahiracho Sendai-ski, JAPAN	Decision Model of the Optimal Amount of Education for Individuals	U.	104	JAP 07
Mme. ÖNSAN State Planning Organisation Social Planning Department Unit for Education and Research Ankara, TURKEY	Long-Term Iterative Forecasting Model for Manpower Needs of the Economy	Prin. Gov.	96	TUR 01
Dr. OTTWASKA Kultusministerium Baden-Württemberg 7 Stuttgart Neues Schloss, GERMANY	A Student Flow Model for Baden-Württemberg Higher Education	Prin. Gov.	31	GER 09
	An Enrolment Forecasting Model for Primary and Secondary Education in Baden-Württemberg		39	GER 10
	A Manpower Supply Model for Baden-Württemberg		84	GER 11
Mr. Kenneth V. PANKHURST Programme Development Service Department of Manpower and Immigration Union du Canada Building 325 Dalhousie Street Ottawa, Ontario CANADA	Manpower Supply Model for Canada	Gov. Stat.	83	CAN 11
	Manpower Requirements Model for Canada		89	CAN 12
Mr. Michael PARTI Department of Economics Northwestern University Evanston, Illinois U.S.A.	Model of Student Achievement as a Function of Teacher and School Characteristics	U.	121	US 05

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. J. PASSENIER Centraal Planbureau Van Stolkveg 14 The Hague, NETHERLANDS	Short-Term Forecasting Model for the Netherlands Educational System	Other Gov.	75	NET 03
	Medium-Term Forecasting Model for the Netherlands Educational System		76	NET 04
	Long-Term Forecasting Model for the Netherlands Educational System		77	NET 05
	Assessment of the Supply of Highly Skilled Personnel		94	NET 06
Mr. Lewis J. PERL Office of Analytical Studies University of California Berkeley, California 94720 U.S.A.	The Production of College Graduates	U.	34	US 14
Miss Celia PHILLIPS Higher Education Research Unit London School of Economics Houghton Street London, W.C.2, ENGLAND	Model of Student Flows in the British Educational System With Emphasis on the Post-Compulsory Secondary Level to Higher Education Movements	U.	3	UK 06
M. Pierre-Paul PROULX Directeur Administratif Conférence des Directeurs et des Principaux des Universités de Quebec 2375 Chemin de la Côte Ste. Catherine Montréal, P. Quebec CANADA	Model for Provincial Grants to Universities	U.	41	CAN 14
Mr. Hans Jørgen RASMUSSEN The Institute for Mathematical Statistics and Operations Research Danmarks Tekniske Højskole Building No. 305 Lundtoftevej 100 Lyngby, DENMARK	A Simulation Model for Analysing Class Sizes in Teacher Training Colleges	U.	113	DEN 01

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. ROELOFFS Federal Ministry of Education and Science Heussallee 2-10 D-5300 BONN	A Student Flow Model for General Secondary Education	Prin. Gov.	7	GER 04
	A University Student Forecasting Model		51	GER 05
	A Teacher Supply and Demand Model for Secondary Education		38	GER 06
Mr. Harum SAKAUE Research Section Kagoshima Prefectural Board of Education 14-50, Yamashita-cho Kagoshima-shi Kogoshima Prefecture, JAPAN	Forecasting Model of New Entrants into Upper Secondary Schools by Course in Kagoshima Prefecture	Prin. Gov.	28	JAP 05
Mr. J.P. SCHELLHORN Conseil de la Reforme et de la Planification Scolaire Lausanne 1008 Marterey 56, SWITZERLAND	Model of the Educational System of Canton Vaud	Prin. Gov.	27	SWI 01
Mr. V. SCHMIDT Seminar für Wirtschaftspolitik und Strukturforschung Olshausenstrasse 40-60 23 Kiel, GERMANY	Model of University Enrolment and Output for Schleswig-Holstein	Non-Gov.	107	GER 14
Dr. K. SCHMITTLEIN Bayerisches Staatsministerium für Unterricht und Kultus Salvatorplatz 2 8 München 2, GERMANY	Student-Forecasting Model for Primary and Secondary Education	Prin. Gov.	8	GER 07
Mr. E. SCHMITZ Institut für Bildungsforschung in der Max-Planck-Gesellschaft 1 Berlin 31 Blissestrasse 2, GERMANY	Projection Model for School Expenditures	Non-Gov.	1	GER 13

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. Brita SCHWARZ Centre for Educational Research and Innovation (C.E.R I.) O.E.C.D. 2, rue André-Pascal Paris 16e, FRANCE	Generalized Simulation Model of an Educational System	Int. Org.	6	INT 02
Mr. Klaus SCHWEIKERT Arbeitsgruppe für Empirische Bildungsforschung 151 Zeppelinstrasse Heidelberg, GERMANY	Descriptive Model of the Baden-Württemberg Educational System	Non-Gov.	30	GER 03
Dr. Kenneth A. SIMON Director Reference, Estimates and Projections Branch U.S. Office of Education Washington, D.C. U.S.A.	Projections of Educational Statistics to 1977-78	Prin. Gov.	4	US
Mr. E. SOLOMON Human Resources Analysis Division UNESCO 2, Place Fontenoy Paris 7e, FRANCE	Generalized Simulation Model of an Educational System and its Relation to the Manpower System	Int. Org.	81	INT 01
Mme. SOY State Planning Organisation Social Planning Department Unit for Education and Research Ankara, TURKEY	Long-Term Iterative Forecasting Model for Manpower Needs of the Economy	Prin. Gov.	96	TUR 01

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Dr. Richard STONE Unit for Demographic Accounting and Educational Planning King's College Research Centre King's College Cambridge Road Cambridge, ENGLAND	A Demographic Input-Output Model for Educational Forecasting and Planning	U.	2	UK 05
Mr. Goran SVANFELDT Forecasting Institute National Central Bureau of Statistics Linnégatan 87 Fack Stockholm 27, SWEDEN	Model for Projections of the Swedish Educational System	Gov. Stat.	26	SWE 01
Dr. E. SWAELEN Services de Programmation de la Politique Scientifique 8, rue de la Science Bruxelles 4, BELGIUM	Forecasting University Enrolments Generalized University Facilities Planning Model Analysis of the Supply of University Graduates Optimal Location of New Industrial High Schools for Engineering	Prin. Gov.	10 108 86 52	BEL 02 BEL 03 BEL 04 BEL 05
Mme. Lucie TANGUY Centre d'Etudes Sociologiques 80, rue Cardinet Paris 17e, FRANCE	Explanation of Differences in Enrolment Ratios by Region	Non-Gov.	35	FR 04
Professor Tore THONSTAD Institute of Economics University of Oslo Box 1095 Blindern Oslo, NORWAY	Human Flow of the Norwegian Educational System	U.	20	NOR 03

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. B.A. THOOLEN Centraal Planbureau Van Stolkveg 14 The Hague, NETHERLANDS	Short-Term Forecasting Model for the Netherlands Educational System	Other Gov.	75	NET 03
	Medium-Term Forecasting Model for the Netherlands Educational System		76	NET 04
	Long-Term Forecasting Model for the Netherlands Educational System		77	NET 05
	Assessment of the Supply of Highly Skilled Personnel		94	NET 06
Mr. George TRACZ Department of Educational Planning Ontario Institute for Studies in Education (OISE) 102 Bloor Street West Toronto 5, Ontario CANADA	Model for Calculation of Optimal Patterns of School Bussing and School Location of Ontario Counties	U.	54	CAN 03
Dr. Ugo TRIVELLATO Facolta di Scienze Statistiche University of Padua Padua, ITALY	Allocation of Teaching Personnel in the Italian Universities	U.	44	ITA 02
Mr. Morikazu USHIOGI Faculty of Educational Research Nagoya University Nagoya-shi Chikusa-ku Fiuro-cho, JAPAN	Historical Analysis of the Numbers of Students in Higher Education in Six Countries	U.	80	JAP 08
Professor Felice VIAN Facolta di Scienze Statistiche University of Padua Padua, ITALY	Allocation of Teaching Personnel in the Italian Universities	U.	44	ITA 02
	Budgetary Allocation for Construction in the Pre-University School System		62	ITA 03

RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. Teruhiko WAKANA Research Section Minister's Secretariat Ministry of Education 3-2-2 Kasumigaseki Chiyada-ku Tokyo, JAPAN	Supply and Demand Model of Graduates Beyond the Compulsory Level	Prin. Gov.	97	JAP 01
Dr. Cicely WATSON Ontario Institute for Studies in Education (OISE) Department of Educational Planning 102 Bloor Street West Toronto 5, Ontario CANADA	Pilot County School System Planning Model	U.	53	CAN 01
Miss Julia WEATHERBURN Planning Branch Department of Education and Science Curzon Street London W.1, ENGLAND	Projection of Numbers in Higher Education	Prin. Gov.	25	UK 13
	Teacher Supply and Demand Model		49	UK 14
	Integrated Set of Education and Manpower Models		95	UK 15
Dr. Georg WIESER Institut für Höhere Studien und Wissenschaftliche Forschung A-1060 Wien VI Stumpergasse 56, AUSTRIA	A Descriptive Student Flow Model of the Austrian Educational System	Non-Gov.	9	AUS 01
Dr. Douglas WRIGHT Ontario Committee on University Affairs Ontario Department of University Affairs Ministry of Education Toronto, Ontario CANADA	Model for Determining Provincial Grants to Ontario Universities	Prin. Gov.	55	CAN 07

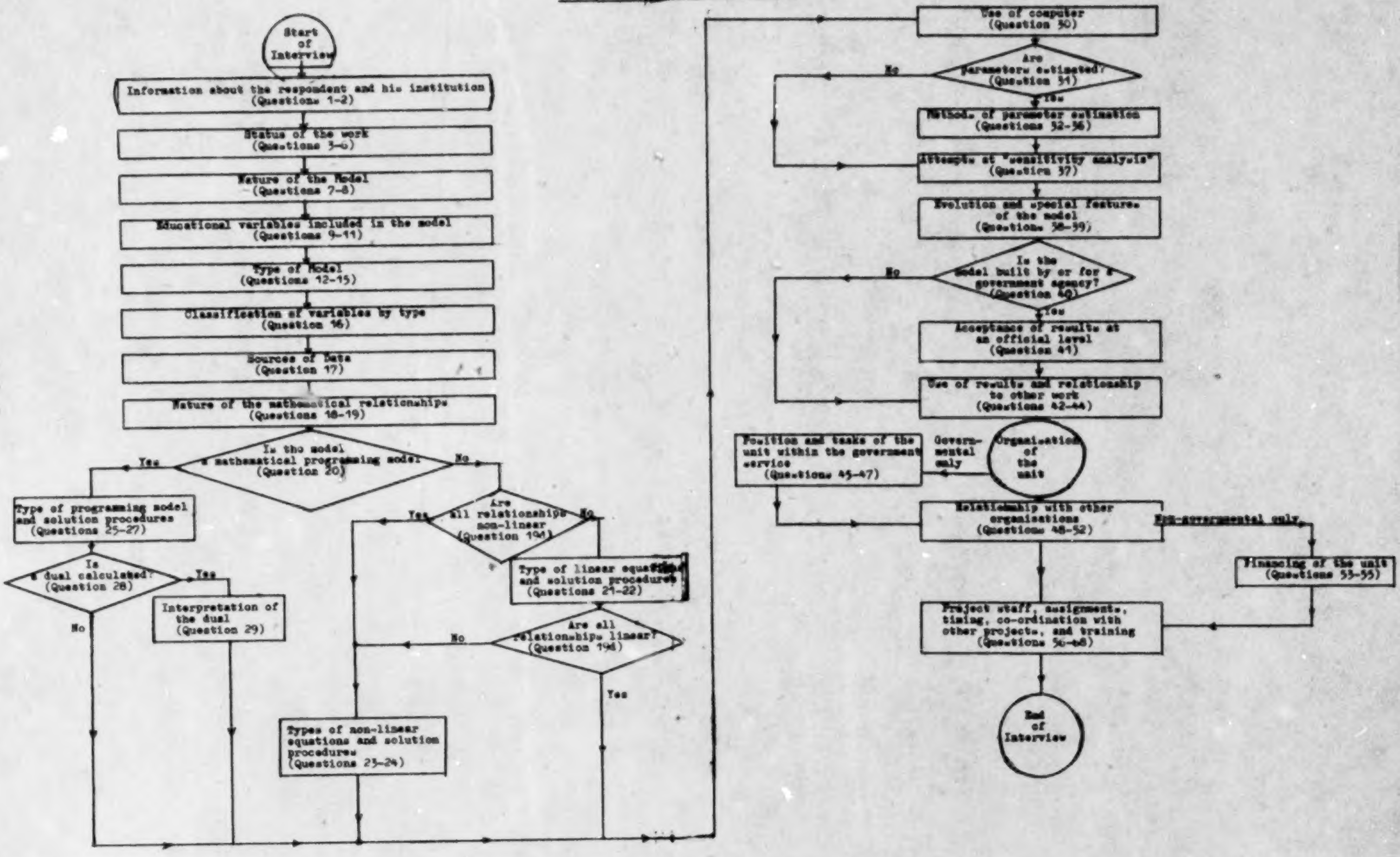
RESPONDENT	TITLE OF MODEL	AFFILIATION	MODEL SERIAL NO.	MODEL CODE
Mr. Yoshitomo YAMANE Science Education Institute of Osaka Prefecture Karitacho Sumiyoshi-ku Osaka, JAPAN	Forecasting Model of the School Population in Osaka Prefecture	Prin. Gov.	29	JAP 06
Mr. ZIVKOVIĆ Economic Institute Jovina 12 Belgrade, YUGOSLAVIA	Pert Model of Reform in Secondary Education	Non-Gov.	5	YUG 02

5

ANNEX 5

QUESTIONNAIRE ON MATHEMATICAL MODELS FOR THE EDUCATIONAL SECTOR IN OECD MEMBER COUNTRIES

FLOW DIAGRAM OF THE QUESTIONNAIRE


Start of Interview
Information about the respondent and his institution (Questions 1-2)
Status of the work (Questions 3-6)
Nature of the Model (Questions 7-8)
Educational variables included in the model (Questions 9-11)
Type of Model (Questions 12-15)
Classification of variables by type (Question 16)
Sources of Data (Question 17)
Nature of the mathematical relationships (Questions 18-19)
Is the model a mathematical programming model (Question 20)
Yes
No
Type of programming model and solution procedures (Questions 25-27)
Is a dual calculated? (Question 28)
Yes
No
Interpretation of the dual (Question 29)
Are all relationships non-linear (Question 19a)
Yes
No
Type of linear equations and solution procedures (Questions 21-22)
Are all relationships linear? (Question 19a)
No
Yes
Types of non-linear equations and solution procedures (Questions 23-24)
Use of computer (Question 30)
Are parameters estimated? (Question 31)
No
Yes
Methods of parameter estimation (Questions 32-36)
Attempts at "sensitivity analysis" (Question 37)
Evolution and special features of the model (Questions 38-39)
Is the model built by or for a government agency? (Question 40)
No
Yes
Acceptance of results at an official level (Question 41)
Use of results and relationship to other work (Questions 42-44)
Organisation of the unit
Governmental only
Position and tasks of the unit within the government service (Questions 45-47)
Relationship with other organisations (Questions 48-52)
Non-governmental only
Financing of the unit (Questions 53-55)
Project staff, assignments, timing, co-ordination with other projects, and training (Questions 56-68)
End of Interview

QUESTIONNAIRE ON MATHEMATICAL MODELS FOR THE EDUCATION SECTOR IN OECD MEMBER COUNTRIES

Name of interviewer : ____________________

Name of respondent : ____________________

Country Designation : ____________________

Questionnaire number (within country) : ____________________

Date of interview : __________ Starting time of interview : _____

1.a) What is the name and address of the institution, or unit, in which you work?

Name : ____________________

Address : ____________________

____

b) Who is the director, or principal, of the institution?

Name : ____________________

Title : ____________________

2. The respondent should now be categorized as belonging to:

Principal Government Organisation Responsible for Education ☐

National Statistical Office ☐

Other Government Office ☐

University ☐

Other non-governmental Organisation ☐

International Organisation ☐

Individual (not directly related to any of the above) ☐

Notes (if any) : ____________________

____

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____

3. Are you working on more than one explicit model?

Yes ☐ No ☐

If YES, ask:

Are these models a) Related ☐

b) Unrelated ☐

If a), ask:

What is the subject-matter of each related model?

____

____

____

The remainder of this section must be repeated for each unrelated model. This will mean completing a separate questionnaire for every such model. If applicable, explain that "related models" will be considered as one model unless otherwise specified.

4. Is work on the model: a) Finished ☐

b) In progress ☐

c) Planned, but not yet started ☐

Comments on current status (if any): ____________________

____

____

____

5. Do you have a written description, (published or unpublished) of the model as it now exists?

Yes ☐ No ☐

If YES, ask:

Could you let me have a copy of the written material please?

RECORD:

a) Written material handed over. ☐

b) Material exists, but not at hand: to be sent later. ☐

(Obtain name and address of person to write to if they forget to send it).

c) Material available in the future. ☐

(Obtain an estimate of expected date of availability to O.E.C.D.)

6. Is the educational system:

a) Represented by itself ☐

b) Related to another system(s) ☐

PROMPT if necessary (e.g. demographic, economic, manpower)

If b) ask:

What system(s)?

7. Does the model represent:

a) The whole educational system ☐

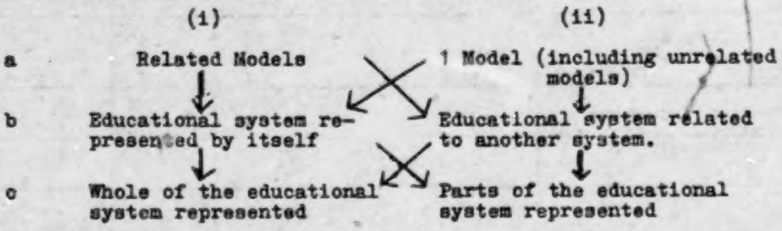
b) Parts of the educational system ☐

PROMPT if necessary (e.g. Teachers, students, costs, other resources, higher education, part-time education, technical education, primary education, etc.)

If b) ask:

What parts of the educational system are represented?

From questions 3, 6 and 7 we have now elicited (or should have done) which of the following "paths" the model follows. It would probably be best to check the diagram below with the respondent.



	(i)	(ii)
a	Related Models	1 Model (including unrelated models)
b	Educational system represented by itself	Educational system related to another system.
c	Whole of the educational system represented	Parts of the educational system represented

8. Is the model primarily:

a) Theoretical (algebraic) ☐

b) Numerical and experimental ☐

c) Numerical and applied ☐

Which of the following variables are included in the model? (questions 9-11)

9.a) Student stocks ☐

Possible cross-classifications are:

	All enrolments	Exam candidates	Foreign students	Other (Specify)
Level of education				
Grades within levels				
Type of education				
Age				
Sex				
Previous educational experience				
Socio-economic group				
Regional origin				
Part-time/full-time				
Other (specify)				

Notes: ______________________________

____

9.b) Student flows ☐

Possible cross-classifications are:

	Transferers	Repeaters	New entrants	Graduates	Other (Specify)
Level of education					
Grades within levels					
Type of education					
Age					
Sex					
Previous educational experience					
Socio-economic group					
Regional origin					
Part-time/full-time					
Other (specify)					

Notes: ______________________________

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10.a) Teacher stocks ☐

Possible cross-classifications are:

(i) Age ☐
(ii) Sex ☐
(iii) Marital status ☐
(iv) Professional status ☐
(v) Professional qualification ☐
(vi) Subject of qualification ☐
(vii) Subject taught ☐
(viii) Level of education taught at ☐
(ix) Whether part-time or full-time ☐
(x) Other (please specify) ☐

Notes: ______________________________

____

10.b) Teacher flows ☐

Possible cross-classifications are:

	First-time teachers	Re-entering teachers	Retiring teachers	Other with-drawals	Other (specify)
Age					
Sex					
Marital status					
Professional status					
Professional qualification					
Subject of qualification					
Subject taught					
Level of education taught at					
Part-time/full-time					
Other (specify)					

Notes: ______________________________

____

11.a) Expenditures, distinguished by

(i) Capital expenditures ☐

(ii) Current expenditures (excluding/including teachers salaries) ☐

(iii) Functions (administration, instruction, research, etc.) ☐

(iv) Level of education (primary, secondary, etc.) ☐

(v) Type of education (adult, technical, vocational, etc.) ☐

(vi) Institutions (Federal, local, aided, private, etc.) ☐

(vii) Other (please specify) ____________________

11.b) Capital stocks, distinguished by

(i) Type (buildings, plant and equipment) ☐

(ii) Teaching-space available ☐

(iii) Space for non-teaching functions ☐

(iv) Level of education (primary, secondary, etc.) ☐

(v) Type of education (adult, technical, vocational, etc.) ☐

(vi) Institutions (Federal, local, aided, private, etc.) ☐

(vii) Other (please specify) ____________________

11.c) Costs, distinguished by

(i) Capital costs ☐

(ii) Current costs (excluding/including teachers salaries) ☐

(iii) Level of education (primary, secondary, etc.) ☐

(iv) Type of education (adult, technical, vocational, etc.) ☐

(v) Institutions (Federal, local, aided, private, etc.) ☐

(vi) Other (please specify) ____________________

12. What problem(s) is the model addressed to?

(Make a summary of the answer given. Then read it back to obtain corrections and approval of your final version. Do this for all the following questions marked "S".)

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13. Is this primarily a

a) Descriptive model (setting out the relationships of the system) ☐

b) Forecasting model (generating a set of future estimates) ☐

c) Decision model (where policy variables are solved for) ☐

d) Simulation model (a technique amenable for conducting experiments in testing the behaviour of a system) ☐

(i) With stochastic elements ☐

(ii) Without stochastic elements ☐

14. What is the time-horizon of the model?

a) Short-term (up to 3 years) ☐

b) Medium-term (4 - 7 years) ☐

c) Long-term (over 7 years) ☐

Indicate, if possible, the specific time-horizon of the model in years.

____

15. Does the model determine

a) Only terminal values of variables ☐

b) Values of all variables at intermediate periods ☐

c) Intermediate values of some variables, terminal values only of the others ☐

If b) or c), ask:

What are the time-units of these periods? (e.g. years, months, quarters)

____

16.a) Indicate those variables which are always determined externally to the system.

16.b) The values of which variables are always determined by the model?

16.c) Which variables do you regard as policy variables?

17. What are the sources of data used in the model?

a) Population census ☐

b) Other regular surveys (specify) ☐

c) Special surveys (specify which, and what institution conducted them) ☐

d) Other sources (specify) ____________________

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SAY: I would now like to investigate the nature of the relationships of the system.

18. Could you indicate whether equations of the following types are included in the model? If possible, could you give the number of equations of each type?

	No.
a) Behavioural (e.g. expressing a demand function for higher education)	☐☐
b) Technological (e.g. expressing the number of square feet per pupil)	☐☐
c) Legal-institutional (e.g. expressing a fixed tax rate levied for educational purposes)	☐☐
d) Definitional (e.g. expressing the number of enrolments in 1st grade = number of new enrolments in 1st grade + repeaters of 1st grade)	☐☐

19. As in the previous question, could you specify the existence (and if possible, the number) of equations of the model in terms of whether they are:

(At this point you may have to take notes and refer to printed material in order to get information on the nature of the equations.)

	No.
a) (i) Equalities	☐☐
(ii) Inequalities	☐☐
b) (i) Deterministic	☐☐
(ii) Stochastic	☐☐
c) (i) Instantaneous	☐☐
(ii) Lagged first order [e.g. $y_t = f(x_{t-1})$]	☐☐
(iii) Lagged second or higher order [e.g. $y_t = f(x_{t-2})$]	☐☐
d) (i) Linear	☐☐
(ii) Non-Linear	☐☐

No.

e) (i) No differences ☐☐

(ii) First-order differences ☐☐
e.g. $y_t = f(\Delta x_{t-j})$
$y_t = f(dx_{t-j})$

(iii) Second or higher-order differences ☐☐
e.g. $y_t = f(\Delta^2 x_{t-j})$
$y_t = f(d^2 x_{t-j})$

f) (i) Continuous ☐☐

(ii) Discrete ☐☐

20. Is there a preference (objective) function?

YES ☐ NO ☐

If YES, say:

(i) Then this is a mathematical programming type of model?

If NO, say:

(ii) Then this is not a mathematical programming type of model?

If the answer to Q.20 is YES, but NO to (i), question further.

If the answer to Q.20 is NO, but YES to (ii), question further.

If both answers are YES (i.e. it is a programming mod~~el,~~ GO TO Question 25.

If all of the relationships in Question 19.d) are non-linear, GO TO Question 23.

21. Is the system of equations a set of

a) Independent equations ☐

b) Recursive equations ☐

c) Simultaneous equations ☐

d) Block-recursive equations ☐

e) Other (please specify) ☐

(It may be necessary to explain that if there is a set of d), d) alone should be marked, however many equations of types a), b) and c) there are. Similarly, a set of c) automatically includes any odd equations of types a) and b), and a set of b) includes any number of type a) equations.)

22. S What procedures are used to solve the model? (e.g. matrix inversion, iteration). Indicate any special technical problems.

If all the relationships in Question 19.d) are linear, GO TO Question 30.

23. S Please specify the types of non-linear relationships in the model (e.g. exponential, logarithmic).

24. S What procedures are used to solve the model? Indicate any special technical problems.

GO TO Question 30.

25. What is the shape of the preference (objective) function (e.g. linear, quadratic, non-convex)?

(Note that more than one preference function may have been used. We need to get this information).

26. What is being maximised/minimised? (Eliminate one)

27. What is the algorithm used to obtain the solution?

28. Is there a dual calculated? YES ☐ NO ☐

If NO, GO TO Question 30.

29. Briefly describe the interpretation of the dual in terms
S of the "shadow prices".

30. Is a computer used to obtain the results of the model?

YES ☐ NO ☐

If YES, ask:

Describe the type and model of the computer. In addition, what special programmes or languages are used.

31. Are estimates made of parameters of the model?

YES ☐ NO ☐

If NO, GO TO Question 37.

32. Are such estimates based on

a) Tabulation of data obtained from the sources indicated in Q.17. ☐

b) Impressions of experts in government, industry, universities, etc. ☐

c) Econometric/statistical analysis ☐

d) Other methods (please specify)

If 32.c) is NOT indicated, GO TO Question 35.

33. Are estimates based on econometric/statistical analysis derived from

a) Time-series data ☐

b) Cross-sectional data ☐

34. What techniques are employed in the estimation of parameters?

a) Simple regression ☐

b) Multiple regression ☐

c) Other multivariate techniques ☐

d) Other methods (please specify) ______________

35.a) Are any estimates of parameters altered subjectively at any time?

YES ☐ NO ☐

If YES, ask:

b) (i) By whom?

S(ii) On what basis?

36.a) Is an attempt made to measure changes of parameters over time?

YES ☐ NO ☐

If YES, ask:

36.b) (i) Which parameters?

S(ii) How are the changes measured?

37. Describe any attempt at "sensitivity analysis" carried
S out on the model.

(Define sensitivity as the effect on the solution of the model of a given change in the value of a parameter.)

38. Could you trace the evolution of the model in terms of
S different versions developed at earlier stages?

39.a) Does the model include features having special relevance to the educational system of this country?

YES ☐ NO ☐

If YES, ask:

39.b) What special problems and features of this country have
S been taken into account in the building of the model?

40. Has the model been constructed by, or for, a government agency?

YES ☐ NO ☐

If NO, GO TO Question 42.

41. Have the results indicated by the model been accepted at an official level? (By this we mean that a government considers the results as valid for use in its decision-making).

YES ☐ NO ☐

If YES, ask:

By whom are the results so accepted?

If NO, ask:

S Can you say why not?

42. Could you give a brief description of how the results of
S the model are being used?

43. Have you conducted tests on the model to determine the reliability and validity of its results?

YES ☐ NO ☐

If YES, ask:

S What is the nature and result of those tests?

44.a) Is there any other work being carried out auxiliary to, but not necessarily formally integrated with, the model project?

YES ☐ NO ☐

If YES, ask:

44.b) What does this concern? What are the various activities,
S and indicate their relationship to the model.

If there was more than one unrelated model, take another questionnaire and start again at question 4.

ORGANISATION

SAY: We should also like to know a little about the organisation of the model-building effort, and the relationships with other agencies/organisations.

If the respondent is not from the government service, go to question 48.

45. S Could you clarify the position of this unit within the government? (e.g. a planning office of the Ministry of Education, a separate planning office altogether, or what?)

46. What are the tasks of this unit?

a) To collect information ☐

b) To process information ☐

c) To make forecasts, plans, etc. ☐

d) To advise on policy ☐

e) To implement policy ☐

f) To supervise the implementation of policy ☐

g) Other (please specify) ☐

47.
S
With what other government agencies does this one have regular liaison, and what is the nature of this liaison?

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48. Is work in this unit being carried out jointly with any other organisation(s)?

yes ☐ no ☐

If NO, and the respondent comes from the government service, go to question 56.

If NO, and the respondent does not come from the government service, go to question 53.

49. Which organisation(s)?

a) Ministry of Education ☐

b) National Statistical Office ☐

c) Other Government Agency ☐

d) University ☐

e) Independent Research Institute ☐

f) International Organisation ☐

50. For such joint projects, are there joint project directors?

yes ☐ no ☐

If YES, go to question 53.

51. From which organisation does the project director come?

____

52. Can you tell me why he came from that organisation, rather than another working on the same project?

____

____

____

If the respondent comes from the government service, go to question 56.

53. Could you tell me from what sources is this unit financed? (Include general financial backing, and grants tied to specific projects).
If possible indicate the proportions of all grants from different sources.

a) Government ☐

b) Universities ☐

c) Independent Research Institutes ☐

d) International Organisation (UNESCO, ILO, etc.) ☐

e) International Foundation, (Ford, Rockfeller, etc.) ☐

f) Private Donations ☐

54. Is any finance tied to specific projects?

yes ☐ no ☐

55. Apart from money so tied, has there been any attempt by financing bodies to influence the nature of the work carried out?

yes ☐ no ☐

If YES, ask: With what result?

____

____

____

____

____

56. To whom does the director of this institute report? What is/are the title(s) of this/these person(s)?

____

____

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____

____

57. Could you indicate the numbers of full-time, part-time, and total full-time equivalent staff employed in this institute, classified by highest professional qualification? Indicate total full-time equivalent numbers working on the model project (if any).

	Full-time	Part-time	Total full-time equivalent	Full-time equivalent working on model project
Economists				
Statisticians				
Mathematicians				
Psychologists				
Computer specialists				
Sociologists				
Other profsnl staff				

58. Do professional staff work on more than one project at a time?

yes ☐ no ☐

59. Is field investigation conducted specifically in furtherance of some projects?

yes ☐ no ☐

If YES, ask: Is the field investigation conducted by members of this unit, or by other persons?

This unit ☐ Others ☐

If others, ask: From what organisation did/do these people come?

____

____

____

60. For how long has work been in progress on the model project?

____

61. Is there a specific time by which the model project will be deemed to be "finished"?

yes ☐ no ☐

If YES, ask: What is that time?

62.
S
Could you briefly describe the co-ordination between the model project and other research conducted within the unit?

63. To whom do the heads of individual research projects report?

64. Is there any training conducted within the unit?

yes ☐ no ☐

If NO, GO to question 68.

65. Is this training

a) Formal ☐

b) Informal ☐

66.
S
For whom is this training organised, and what form does it take?

67. a) Is participation in training

(i) Compulsory ☐

(ii) Optional ☐

b) Who else attends?

c) Who gives the training?

68. Finally, could I have a list of all the professional staff and, if possible, an indication of the projects on which they are working?

SAY: Thank you very much for agreeing to be interviewed. Your help is greatly appreciated.

Time of finish of interview: ____________________

List of Questionnaires Consulted

1. Netherlands Economic Institute, Rotterdam, Questionnaire on Economic Planning, Mimeographed (undated), p. 25. Obtained through private communication from Mr. Peter A. Cornelisse, November, 1968.

2. United Nations Economic Commission for Europe, Development and Use of Macro-Economic Models in Europe, Unpublished Document ME/GER/68/0:1. Questionnaire on the Use of Macro-Economic Models, p. 4. Obtained through private communication from Mr. Stein Rossen, November, 1968.

3. Stone, Richard and Colin Leicester, "The Methodology of Planning Models" in Max F. Millikan (Editor), National Economic Planning, National Bureau od Economic Research, New York, 1967. Appendix 1, University of Cambridge, Department of Applied Economics, An International Survey of the Methodology of Planning Models, Questionnaire, pp. 24-27.

4. UNESCO, International Conference on Educational Planning (Paris 6-14 August 1968), Preliminary Questionnaire ICEP/0/3, Paris, April 28, 1967, p. 12. Obtained through private communication from Mr. Lourié, November, 1968.

5. UNESCO, Questionnaire on Statistics of Research and Experimental Development Effort, 1967. Unpublished Document, July, 1968. Obtained through private communication from Mr. Hillig, November, 1968.

6. UNESCO, Questionnaire on Statistics of Education, 1966/67, Paris, January, 1968. Obtained through private communication from Mr. Goldstone, November, 1968.

7. UNESCO, Questionnaire on Statistics of Educational Finance and Expenditure, 1966, Paris, 1967. Obtained through private communication from Mr. Goldstone, November, 1968.

8. UNESCO & ILO, Questionnaire on Programme and Organisation of Educational Statistics, Paris, March, 1965, UNESCO-ILO/ST/Q/76a; Paris, March, 1968, UNESCO-ILO/ST/Q/76b. Obtained through private communication from Mr. Goldstone, November, 1968.

ANNEX 6

INDEX TO MODEL TITLES

INDEX OF MODELS

Model Code	Serial Number	Title of the Model
AUS 01	9	A DESCRIPTIVE STUDENT FLOW MODEL OF THE AUSTRIAN EDUCATIONAL SYSTEM
AUS 02	68	A COST MINIMISATION STUDENT FLOW MODEL, ADAPTIVE TO ANNUALLY-DETERMINED MANPOWER REQUIREMENTS
BEL 01	85	FORECASTING FUTURE QUALIFIED MANPOWER NEEDS
BEL 02	10	FORECASTING UNIVERSITY ENROLMENTS
BEL 03	108	GENERALIZED UNIVERSITY FACILITIES PLANNING MODEL
BEL 04	86	ANALYSIS OF THE SUPPLY OF UNIVERSITY GRADUATES
BEL 05	52	OPTIMAL LOCATION OF NEW INDUSTRIAL HIGH SCHOOLS FOR ENGINEERING
BEL 06	87	NEEDS OF THE ECONOMY FOR UNIVERSITY GRADUATES TO 1980
BEL 07	109	A STUDENT FORECASTING MODEL FOR UNIVERSITIES
CAN 01	53	PILOT COUNTRY SCHOOL SYSTEM PLANNING MODEL
CAN 02	32	STUDENT FLOW MODEL OF SECONDARY SCHOOLS AND ENTRANCE TO UNIVERSITIES OF ONTARIO
CAN 03	54	MODEL FOR CALCULATION OF OPTIMAL PATTERNS OF SCHOOL BUSSING AND SCHOOL LOCATION OF ONTARIO COUNTIES
CAN 04	110	I. SIMULATION MODELS OF INSTITUTIONS OF HIGHER EDUCATION WITH APPLICATION TO ONTARIO MEDICAL SCHOOLS, UNIVERSITIES AND COMMUNITY COLLEGES
CAN 05	111	II. SIMULATION MODELS OF INSTITUTIONS OF HIGHER EDUCATION WITH APPLICATION TO ONTARIO MEDICAL SCHOOLS, UNIVERSITIES AND COMMUNITY COLLEGES
CAN 06	112	III. SIMULATION MODELS OF INSTITUTIONS OF HIGHER EDUCATION WITH APPLICATION TO ONTARIO MEDICAL SCHOOLS, UNIVERSITIES AND COMMUNITY COLLEGES
CAN 07	55	MODEL FOR DETERMINING PROVINCIAL GRANTS TO ONTARIO UNIVERSITIES
CAN 08	11	ADVANCE ESTIMATES OF SCHOOL ENROLMENT IN CANADA
CAN 09	12	MEDIUM TERM FORECASTS OF EDUCATION ENROLMENT IN CANADA
CAN 10	69	CALCULATION OF EDUCATION STOCKS AND PRODUCTIVITY OF EDUCATION MANPOWER

Model Code	Serial Number	Title of the Model
CAN 11	88	MANPOWER SUPPLY MODEL FOR CANADA
CAN 12	89	MANPOWER REQUIREMENTS MODEL FOR CANADA
CAN 13	56	MODEL FOR ALLOCATION OF PROVINCIAL GRANTS TO LOCAL SCHOOL DISTRICTS
CAN 14	41	MODEL FOR PROVINCIAL GRANTS TO UNIVERSITIES
DEN 01	113	A SIMULATION MODEL FOR ANALYSING CLASS SIZES IN TEACHER TRAINING COLLEGES
FRA 01	72	GENERAL OPTIMIZATION MODEL FOR THE ECONOMY AND THE EDUCATIONAL SYSTEM
FRA 02	60	PLANNING MODEL OF CONSTRUCTION NEEDS AND LOCATION OF COMPREHENSIVE LOWER SECONDARY SCHOOLS
FRA 03	90	CALCULATION OF THE EDUCATIONAL STOCK EMBODIED IN THE FRENCH ACTIVE POPULATION
FRA 04	35	EXPLANATION OF DIFFERENCES IN ENROLMENT RATIOS BY REGION
FRA 05	114	BUDGETARY ALLOCATION AND STUDENT ORIENTATION MODEL FOR THE FACULTY OF SCIENCES AT GRENOBLE
FRA 06	91	FIFTH PLAN MANPOWER DEMAND MODEL
FRA 07	73	EDUCATIONAL AND MANPOWER SECTIONS OF THE SIXTH FRENCH PLAN
FRA 08	36	EDUCATIONAL SELECTION AND ORIENTATION FROM THE 6ème TO THE 2ème
GER 01	105	A UNIVERSITY CAPACITY MODEL
GER 02	83	STUDENT FORECASTING MODEL,CARRYING THROUGH INTO FIRST EMPLOYMENT
GER 03	30	DESCRIPTIVE MODEL OF THE BADEN-WURTTEMBERG EDUCATIONAL SYSTEM
GER 04	7	A STUDENT FLOW MODEL FOR GENERAL SECONDARY EDUCATION
GER 05	51	A UNIVERSITY STUDENT FORECASTING MODEL
GER 06	38	A TEACHER SUPPLY AND DEMAND MODEL FOR SECONDARY EDUCATION
GER 07	8	STUDENT-FORECASTING MODEL FOR PRIMARY AND SECONDARY EDUCATION
GER 08	106	A UNIVERSITY CAPACITY MODEL

Model Code	Serial Number	Title of the Model
GER 09	31	A STUDENT FLOW MODEL FOR BADEN-WURTTEMBERG HIGHER EDUCATION
GER 10	39	AN ENROLMENT FORECASTING MODEL FOR PRIMARY AND SECONDARY EDUCATION IN BADEN-WURTTEMBERG
GER 11	84	A MANPOWER SUPPLY MODEL FOR BADEN-WURTTEMBERG
GER 12	40	A MODEL FOR OPTIMIZING TEACHER UTILIZATION
GER 13	1	PROJECTION MODEL FOR SCHOOL EXPENDITURES
GER 14	107	MODEL OF UNIVERSITY ENROLMENT AND OUTPUT FOR SCHLESWIG-HOLSTEIN
ICE 01	18	AN APPROACH TO MEASURE AND CHANGE THE OUTPUT STRUCTURE OF AN EDUCATIONAL SYSTEM
IRE 01	43	SECONDARY SCHOOL TEACHER QUOTA MODEL
IRE 02	14	STUDENT ENROLMENT MODEL FOR COUNTRIES
IRE 03	15	LOCAL STUDENT ENROLMENT MODEL
IRE 04	115	ANALYSIS OF CURRICULUM OPTIONS AND THEIR RELATIONSHIP TO INSTITUTIONAL CHARACTERISTICS AND INPUTS
IRE 05	16	AN EDUCATIONAL FLOW FORECASTING MODEL
IRE 06	17	CONTROL CONCEPTS IN COMPUTER AIDED EDUCATIONAL PLANNING
IRE 07	61	A GENERALIZED METHOD FOR ALLOCATING ACADEMIC DEPARTMENTS TO ALTERNATIVE, SEPARATE SITES
ITA 01	92	DEMAND AND SUPPLY OF GRADUATES OF HIGHER EDUCATION IN ITALY
ITA 02	44	ALLOCATION OF TEACHING PERSONNEL IN THE ITALIAN UNIVERSITIES
ITA 03	62	BUDGETARY ALLOCATION FOR CONSTRUCTION IN THE PRE-UNIVERSITY SCHOOL SYSTEM
JAP 01	97	SUPPLY AND DEMAND MODEL OF GRADUATES BEYOND THE COMPULSORY LEVEL
JAP 02	98	FORECASTING MODEL FOR MANPOWER SUPPLY

Model Code	Serial Number	Title of the Model
JAP 03	79	NATION-WIDE REGIONAL ECONOMETRIC MODEL
JAP 04	99	FORECASTING MODEL FOR THE DEMAND FOR VOCATIONALLY-TRAINED SKILLED AND SEMI-SKILLED WORKERS
JAP 05	28	FORECASTING MODEL OF NEW ENTRANTS INTO UPPER SECONDARY SCHOOLS BY COURSE IN KAGOSHIMA PREFECTURE
JAP 06	29	FORECASTING MODEL OF THE SCHOOL POPULATION IN OSAKA PREFECTURE
JAP 07	104	DECISION MODEL OF THE OPTIMAL AMOUNT OF EDUCATION FOR INDIVIDUALS
JAP 08	80	HISTORICAL ANALYSIS OF THE NUMBERS OF STUDENTS IN HIGHER EDUCATION IN SIX COUNTRIES
NET 01	118	LATENT FACTOR ANALYSIS OF THE NUMERICAL YIELD OF THE ROTTERDAM SCHOOL OF ECONOMICS
NET 02	119	DESCRIPTION OF THE SELECTION PROCESS AT THE ROTTERDAM SCHOOL OF ECONOMICS
NET 03	75	SHORT-TERM FORECASTING MODEL FOR THE NETHERLANDS EDUCATIONAL SYSTEM
NET 04	76	MEDIUM-TERM FORECASTING MODEL FOR THE NETHERLANDS EDUCATIONAL SYSTEM
NET 05	77	LONG-TERM FORECASTING MODEL FOR THE NETHERLANDS EDUCATIONAL SYSTEM
NET 06	94	ASSESSMENT OF THE SUPPLY OF HIGHLY SKILLED PERSONNEL
NOR 01	19	A MODEL FOR PREDICTING EDUCATIONAL ENROLMENT AND OUTPUT IN THE POST-SECONDARY EDUCATION SYSTEM OF NORWAY
NOR 02	63	A HIGHER EDUCATION RESOURCE (COST) MODEL
NOR 03	20	HUMAN FLOW OF THE NORWEGIAN EDUCATIONAL SYSTEM
NOR 04	93	LONG-TERM MANPOWER DEMAND MODEL
NOR 05	21	MODEL FOR DETERMINING THE OPTIMUM ALLOCATION OF ENTRANTS TO POST-SECONDARY EDUCATION
NOR 06	64	COST MODEL FOR PRIMARY EDUCATION

Model Code	Serial Number	Title of the Model
NOR 07	65	CURRENT COSTS AND DEMAND FOR TEACHERS IN THE UPPER LEVEL SECONDARY SCHOOLS AND THE VOCATIONAL SCHOOLS FOR INDUSTRY
NOR 08	116	I. MODELS FOR CALCULATION OF CURRENT COSTS IN UNIVERSITIES
NOR 09	117	II. MODELS FOR CALCULATION OF CURRENT COSTS IN UNIVERSITIES
NOR 10	45	STUDY ON THE DEMAND FOR AND SUPPLY OF TEACHERS
NOR 11	74	MODEL OF EDUCATED MANPOWER INPUT PER UNIT OF EXPORTS, DOMESTIC CONSUMPTION AND INVESTMENT FOR NORWAY
POR 01	78	SIMULATION MODEL OF THE PORTUGUESE EDUCATIONAL SYSTEM
SWE 01	26	MODEL FOR PROJECTIONS OF THE SWEDISH EDUCATIONAL SYSTEM
SWI 01	27	MODEL OF THE EDUCATIONAL SYSTEM OF CANTON VAUD
SWI 02	50	TEACHER SUPPLY AND DEMAND MODEL FOR THE CANTON GENEVA
TUR 01	96	LONG-TERM ITERATIVE FORECASTING MODEL FOR MANPOWER NEEDS OF THE ECONOMY
TUR 02	67	COST MODEL FOR TURKISH HIGHER EDUCATION
UK 01	66	MODEL TO DETERMINE GOVERNMENT GRANTS TO LOCAL GOVERNMENT AUTHORITIES IN SCOTLAND
UK 02	22	STUDENT FORECASTING MODEL FOR SCOTLAND
UK 03	46	TEACHER SUPPLY MODEL FOR SCOTLAND
UK 04	47	TEACHER DEMAND MODEL FOR SCOTLAND
UK 05	02	A DEMOGRAPHIC INPUT-OUTPUT MODEL FOR EDUCATIONAL FORECASTING AND PLANNING
UK 06	3	MODEL OF STUDENT FLOWS IN THE BRITISH EDUCATIONAL SYSTEM WITH EMPHASIS ON THE POST-COMPULSORY SECONDARY LEVEL TO HIGHER EDUCATION MOVEMENTS
UK 07	103	RATES OF RETURN TO DIFFERENT TYPES AND LEVELS OF EDUCATION WITH DETAILED INFORMATION ON THE ELECTRICAL ENGINEERING INDUSTRY
UK 08	120	MEASUREMENT OF PRODUCTIVITY OF EDUCATIONAL INSTITUTIONS (Higher, Secondary and Primary)

Model Code	Serial Number	Title of the Model
UK 09	23	GENERAL MODELS FOR PUPIL FORECASTING FOR LOCAL GOVERNMENT AUTHORITIES WITH APPLICATION TO THREE LOCAL AUTHORITIES
UK 10	24	FACTORS AFFECTING STAYING ON AT SCHOOL (past the compulsory leaving age) AT THE LOCAL GOVERNMENT AUTHORITY LEVEL
UK 11	37	FACTORS INFLUENCING CHOICE OF HIGHER EDUCATION
UK 12	48	STUDENT FORECASTING AND TEACHER MOBILITY MODELS FOR THE CITY OF LONDON
UK 13	25	PROJECTION OF NUMBERS IN HIGHER EDUCATION
UK 14	49	TEACHER SUPPLY AND DEMAND MODEL
UK 15	95	INTEGRATED SET OF EDUCATION AND MANPOWER MODELS
US 01	101	CONTRIBUTION OF EDUCATIONAL INPUTS TO ECONOMIC AND NON-ECONOMIC BEHAVIORAL OUTPUTS
US 02	102	THE EFFECT OF EDUCATION ON ECONOMIC VARIABLES
US 03	33	MODEL OF SECTORAL DEMAND FOR PUBLIC AND PRIVATE HIGHER EDUCATION
US 04	57	THE OPTIMAL PATTERN OF SUBSIDY OF UNDERGRADUATE EDUCATION WHEN GROWTH AND REDISTRIBUTION ARE PART OF THE OBJECTIVE FUNCTION
US 05	121	MODEL OF STUDENT ACHIEVEMENT AS A FUNCTION OF TEACHER AND SCHOOL CHARACTERISTICS
US 06	58	STUDENT AND RESOURCE INPUTS TO HIGHER EDUCATION AND THEIR EFFECT ON OUTPUT
US 07	59	DEMAND FOR HIGHER EDUCATION AS A FUNCTION OF FAMILY INCOME
US 08	70	WASHINGTON CENTER FOR METROPOLITAN STUDIES CITY I
US 09	4	PROJECTIONS OF EDUCATIONAL STATISTICS TO 1977-78
US 10	122	DETERMINANTS OF THE QUALITY OF HIGHER EDUCATION
US 11	71	A DYNAMIC LINEAR PROGRAMMING MODEL FOR EDUCATIONAL PLANNING WITH APPLICATION TO MOROCCO
US 12	42	THE SUPPLY AND DEMAND FOR COLLEGE TEACHERS

Model Code	Serial Number	Title of the Model
US 13	13	DEMONSTRATION OF APPLICATION OF COHORT ANALYSIS TECHNIQUE FOR PROJECTING ENROLLMENT AND DEGREE DATA IN [illegible] EDUCATION
US 14	34	THE PRODUCTION OF COLLEGE GRADUATES
YUG 01	100	THE DEVELOPMENT OF EDUCATION IN YUGOSLAVIA IN THE PERIOD 1964-1970 AND ITS ADAPTATION TO THE NEEDS OF THE ECONOMY AND SOCIETY
YUG 02	5	PERT MODEL OF REFORM IN SECONDARY EDUCATION
INT 01	81	GENERALIZED SIMULATION MODEL OF AN EDUCATIONAL SYSTEM AND ITS RELATION TO THE MANPOWER SYSTEM
INT 02	6	GENERALIZED SIMULATION MODEL OF AN EDUCATIONAL SYSTEM
INT 03	82	GLOBAL ACCOUNTS FOR MANPOWER AND EDUCATION ([illegible] MODEL)

ANNEX 7

MASTER INDEX OF CHARACTERISTICS OF MODELS SURVEYED

List of abbreviations used

prin. gov. = principal government organisation responsible for education

gov. stat. = government statistical office

other gov. = other government office

u. = university

non.-gov. = other non-governmental organisation

int. org. = international organisation

ind. = individual

program. = programming

- = none

n.a. = not available

d.n.a. = does not apply

NAME OF COUNTRY	QUESTIONNAIRE NO.	MODEL SERIAL NO.	TITLE OF MODEL	RESPONDENT	TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTION OF MODEL	STATUS OF WORK	RELATIONSHIP OF MODEL TO OTHER SYSTEMS	SCOPE OF THE MODEL	LEVEL OF EDUCATION
Austria	01	9	A Descriptive Student Flow Model of the Austrian Educational System	Dr. Georg Wieser	u.	in progress	by itself	whole	all
Austria	02	68	A Cost-Minimization Student Flow Model, Adaptive to Annually-Determined Manpower Requirements	Dr. W. Clement	u.	in progress	related	whole	all
Belgium	01	85	Forecasting Future Qualified Manpower Needs	Professor P.A. Feldheim	non-gov.	in progress	related	parts	higher
Belgium	02	10	Forecasting University Enrolments	Dr. E. Sweelen	prin. gov.	finished	by itself	parts	higher
Belgium	03	108	Generalized University Facilities Planning Model	Dr. E. Sweelen	prin. gov.	in progress	by itself	parts	higher
Belgium	04	86	Analysis of the Supply of University Graduates	Dr. E. Sweelen	prin. gov.	finished	related	parts	higher
Belgium	05	52	Optimal Location of New Industrial High Schools for Engineering	Dr. E. Sweelen	prin. gov.	finished	by itself	parts	higher
Belgium	06	87	Needs of the Economy for University Graduates to 1980	Mr. W. Desaeyere	u.	finished	related	parts	higher
Belgium	07	109	A Student Forecasting Model for Universities	Professor E. Meulepas	u.	finished	by itself	parts	higher
Canada	01	53	Pilot County School System Planning Model	Dr. Cicely Watson	u.	planned; not yet started	related	parts	primary lower secondary upper secondary
Canada	02	32	Student Flow Model of Secondary Schools and Entrance to Universities of Ontario	Mr. William McReynolds	u.	in progress	by itself	parts	upper secondary
Canada	03	54	Model for Calculation of Optimal Patterns of School Bussing and School Location of Ontario Counties	Mr. George Tracz	u.	in progress	related	parts	primary lower secondary upper secondary
Canada	04	110	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges	Mr. Richard Judy Mr. Jack Levine	u.	finished	by itself	parts	higher
Canada	05	111	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges	Mr. Richard Judy Mr. Jack Levine	u.	in progress	by itself	parts	higher
Canada	06	112	Simulation Models of Institutions of Higher Education with Application to Ontario Medical Schools, Universities and Community Colleges	Mr. Richard Judy Mr. Jack Levine	u.	planned; not yet started	related	parts	higher
Canada	07	55	Model for Determining Provincial Grants to Ontario Universities	Dr. Douglas Wright	non-gov.	finished	by itself	parts	higher

RELATIONSHIP OF MODEL TO OTHER SYSTEMS	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITAL STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF MODEL	SUBSTANTIVE MEANING OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION
by itself	whole	all	all	flows	-	-	descriptive	population census	time-independent	theoretical	behavioural legal-institutional definitional	deterministic linear no differences	-
related	whole	all	all	both	-	costs	decision	-	n.a..	theoretical	behavioural definitional	deterministic linear no differences	yes, and program. model
related	parts	higher	general	both	-	-	forecasting	population census other regular surveys	medium-term	numerical & applied	definitional	deterministic linear no differences	-
by itself	parts	higher	general	stocks	-	-	forecasting	other regular surveys	long-term	numerical & applied	behavioural	stochastic linear non-linear no differences	-
by itself	parts	higher	general	stocks	-	capital stocks costs	simulation without stochastic elements	other regular surveys	time-independent	numerical & applied	technological definitional	deterministic linear no differences	-
related	parts	higher	general	both	-	-	forecasting	population census other regular surveys	long-term	numerical & applied	behavioural definitional	deterministic stochastic linear non-linear no differences	-
by itself	parts	higher	general	stocks	-	-	decision	special surveys	time-independent	numerical & applied	definitional	linear no differences	yes, and program. model
related	parts	higher	general	both	-	-	descriptive	population census other regular surveys	short-term	numerical & applied	technological	deterministic linear no differences	-
by itself	parts	higher	general	stocks	-	-	forecasting	special surveys	long-term	numerical & applied	definitional	deterministic linear first order differences	-
related	parts	primary lower secondary upper secondary	general	stocks	stocks	expenditures capital stocks costs	decision	n.a.	short-term	numerical & applied	n.a.	n.a.	n.a.
by itself	parts	upper secondary	general	both	-	-	descriptive	special surveys	medium-term	numerical & applied	behavioural legal-institutional definitional	deterministic linear no differences	yes, and program. model
related	parts	primary lower secondary upper secondary	general	stocks	-	expenditures capital stocks	decision	n.a.	short-term	numerical & applied	technological definitional	deterministic linear no differences	yes, and program. model
by itself	parts	higher	general	both	both	expenditures capital stocks costs	simulation without stochastic elements	special surveys	short-term	theoretical	technological legal-institutional definitional	deterministic linear first order differences no differences	yes, and program. model
by itself	parts	higher	general	both	both	expenditure capital stocks costs	simulation without stochastic elements	special surveys	short-term	numerical & applied	technological legal-institutional definitional	deterministic linear non-linear first order differences no differences	yes, and program. model
related	parts	higher	general	both	both	expenditures capital stocks costs	simulation without stochastic elements	other sources	short-term	numerical & applied	technological legal-institutional definitional	deterministic linear first order differences no differences	yes, and program. model
by itself	parts	higher	general	both	stocks	expenditures capital stocks costs	decision	other sources	short-term	numerical & applied	legal-institutional definitional	deterministic linear non-linear no differences	-

ORIENTATION OF [illegible]	SUBSTANTIVE NATURE OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION	NATURE OF EQUATION SYSTEM	COMPUTER USAGE	BASIS OF PARAMETER ESTIMATION	ECONOMETRIC/STATISTICAL TECHNIQUES	DATA FOR ECONOMETRIC/STATISTICAL ANALYSIS (time-series, cross-sectional)	CHANGES OF [illegible] OVER TIME	SENSITIVITY [illegible]	SPECIAL [illegible]	COMPARISON [illegible] FOR [illegible]	OFFICIAL [illegible]	VALIDITY [illegible]
theoretical	behavioural legal-institutional definitional	deterministic linear no differences		n.a.	no	-	-	-	d.n.a.	-	no	no	d.n.a.	no
theoretical	behavioural definitional	deterministic linear no differences	yes, and program. model	n.a.	no	-	-	-	d.n.a.	-	no	no	d.n.a.	no
numerical & applied	definitional	deterministic linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	both	yes	-	d.n.a.	yes	no	yes
numerical & applied	behavioural	stochastic linear non-linear no differences	-	independent	yes	econometric/statistical analysis	simple regression multiple regression	time-series	yes	description given	no	yes	yes	no
numerical & applied	technological definitional	deterministic linear no differences	-	recursive	yes	tabulation of data impressions of experts econometric/statistical analysis	-	-	no	description given	no	yes	no	no
numerical & applied	behavioural definitional	deterministic stochastic linear non-linear no differences	-	independent	yes	tabulation of data econometric/statistical analysis	simple regression	time-series	no	-	no	yes	yes	yes
numerical & applied	definitional	linear no differences	yes, and program. model	-	yes	tabulation of data	-	-	no	-	yes	yes	yes	yes
numerical & applied	technological	deterministic linear no differences	-	independent	yes	tabulation of data econometric/statistical analysis	other methods	time-series	no	-	no	no	d.n.a.	no
numerical & applied	definitional	deterministic linear first order differences	-	recursive	no	econometri-/statistical analysis	simple regression	time-series	no	description given	no	no	d.n.a.	yes
numerical & applied	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	yes	yes	no	no
numerical & applied	behavioural legal-institutional definitional	deterministic linear no differences	yes, and program. model	d.n.a.	yes	tabulation of data econometric/statistical analysis	multiple regression	cross-sectional	yes	description given	no	yes	yes	yes
numerical & applied	technological definitional	deterministic linear no differences	yes, and program. model	d.n.a.	yes	tabulation of data	-	-	no	description given	yes	yes	yes	no
theoretical	technological legal-institutional definitional	deterministic linear first order differences no differences	yes, and program. model	d.n.a.	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	both	yes	description given	no	yes	yes	no
numerical & applied	technological legal-institutional definitional	deterministic linear non-linear first order differences no differences	yes, and program. model	d.n.a.	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	both	yes	description given	no	no	d.n.a.	no
numerical & applied	technological legal-institutional definisional	deterministic linear first order differences no differences	yes, and program. model	d.n.a.	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	both	no	-	yes	yes	no	no
numerical & applied	legal-institutional definitional	deterministic linear non-linear no differences	-	independent	no	impressions of experts	-	-	yes	description given	yes	yes	yes	no

NAME OF COUNTRY	QUESTIONNAIRE No.	MODEL SERIAL NO.	TITLE OF MODEL	RESPONDENT	TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTION OF MODEL	STATUS OF MODEL	RELATIONSHIP OF MODEL TO OTHER MODELS	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)
Canada	08	11	Advance Estimation of School Enrolment in Canada	Mr. H. LeBeelleur	gov. stat.	finished	related	whole	all	all	both
Canada	09	12	Medium-Term Forecasts of Educational Enrolment in Canada	Mr. Wolfgang Illing	other gov.	finished	by itself	whole	all	all	both
Canada	10	69	Calculation of Educational Stocks and Productivity of Education Manpower	Mr. Wolfgang Illing	other gov.	in progress	related	whole	all	all	-
Canada	11	88	Manpower Supply Model for Canada	Mr. K. Pankhurst	other gov.	in progress	related	parts	all	general	flows
Canada	12	89	Manpower Requirements Model for Canada	Mr. K. Pankhurst	other gov.	in progress	related	parts	all	general	-
Canada	13	56	Model for Allocation of Provincial Grants to Local School Districts	M. Jean Lessard	prin. gov.	finished	related	parts	primary lower secondary upper secondary	general	both
Canada	14	41	Model for Provincial Grants to Universities	M. Pierre-Paul Proulx	u.	in progress	by itself	parts	higher	general	stocks
Denmark	01	113	A Simulation Model for Analysing Class Sizes in Teacher Training Colleges	Mr. H.J. Rasmussen	u.	finished	by itself	parts	primary lower secondary	teacher training	stocks
France	01	72	General Optimisation Model for the Economy and the Educational System	M. Francois Etcari M. Michel Manuel	other gov.	finished	related	parts	lower secondary upper secondary higher	general	both
France	02	60	Planning Model of Construction Needs and Location of Comprehensive Lower Secondary Schools	M. Dalix	prin. gov.	finished	n.a.	parts	lower secondary upper secondary	general	stocks
France	03	90	Calculation of the Educational Stock Embodied in the French Active Population	M. Michel Debeauvais	u.	finished	related	whole	all	all	stocks
France	04	35	Explanation of Differences in Enrolment Ratios by Region	Mme. Lucie Tanguy	non-gov.	in progress	related	parts	lower secondary	general	stocks
France	05	114	Budgetary Allocation and Student Orientation Model for the Faculty of Sciences at Grenoble	M. Montagnat	u.	in progress	by itself	parts	higher	general	both
France	06	91	Fifth Plan Manpower Demand Model	M. d'Hughes	other gov.	finished	related	parts	all	all	flows
France	07	73	Educational and Manpower Sections of the Sixth French Plan	M. Metais	other gov.	planned; not yet started	related	parts	upper secondary higher	technical general	both
France	08	36	Educational Selection and Orientation from the 6ème to the 3ème	M. Alain Girard	other gov.	finished	by itself	parts	primary lower secondary upper secondary	general	both

SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITAL STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF MODEL	SUBSTANTIVE MEANING OF RELATIONSHIPS	MATHEMATICAL [illegible]	[illegible] OF [illegible]	NATURE OF [illegible]
whole	all	all	both	both	expenditures	forecasting	population census	short-term	numerical & applied	behavioural definitional	stochastic linear no differences	-	independent
whole	all	all	both	-	-	forecasting	other sources	long-term	numerical & applied	behavioural definitional	deterministic linear first order differences no differences	-	recursive
whole	all	all	-	-	-	forecasting	n.a.	long-term	numerical & applied	behavioural technological definitional	deterministic linear	-	recursive
parts	all	general	flows	-	-	forecasting	population census special surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-	independent
parts	all	general	-	stocks	-	forecasting	population census other regular surveys	long-term	numerical & experimental	behavioural technological definitional	deterministic linear non-linear	-	recursive
parts	primary lower secondary upper secondary	general	both	both	expenditures capital stocks costs	decision	other regular surveys	short-term	numerical & applied	behavioural technological legal-institutional definitional	deterministic linear no differences	-	independent
parts	higher	general	stocks	stocks	expenditures costs	decision	other sources	short-term	numerical & experimental	legal-institutional definitional	deterministic linear no differences	-	independent
parts	primary lower secondary	teacher training	stocks	stocks	capital stocks	simulation with stochastic elements	special surveys	time-independent	numerical & applied	definitional	deterministic stochastic linear no differences	-	recursive
parts	lower secondary upper secondary higher	general	both	both	expenditures capital stocks	decision	population census other regular surveys special surveys	long-term	numerical & applied	technological definitional	deterministic linear no differences	yes, and program. model	d.n.a.
parts	lower secondary upper secondary	general	stocks	-	capital stocks costs	decision	population census other regular surveys special surveys	medium-term	numerical & applied	behavioural technological legal-institutional definitional	stochastic linear no differences	-	independent
whole	all	all	stocks	-	costs	forecasting	population census	long-term	numerical & applied	definitional	deterministic linear no differences	-	independent
parts	lower secondary	general	stocks	-	expenditures capital stocks	descriptive	population census special surveys	time-independent	numerical & applied	behavioural	stochastic linear no differences	-	independent
parts	higher	general	both	stocks	expenditures capital stocks costs	decision	other sources	short-term	numerical & applied	behavioural legal-institutional definitional	deterministic linear no differences	-	simultaneous
parts	all	all	flows	-	-	forecasting	population census	medium-term	numerical & applied	technological	deterministic linear first order differences no differences	-	independent
parts	upper secondary higher	technical general	both	both	expenditures costs	descriptive	population census other regular surveys special surveys	medium-term	numerical & applied	behavioural technological legal-institutional definitional	deterministic stochastic linear non-linear no differences	-	independent
parts	primary lower secondary upper secondary	general	both	-	-	descriptive	special surveys	time-independent	numerical & applied	behavioural	deterministic linear no differences	-	independent

	ORIENTATION OF MODEL	SUBSTANTIVE MEANING OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION	NATURE OF EQUATION SYSTEM	COMPUTER USAGE	BASIS OF PARAMETER ESTIMATION	ECONOMETRIC/STATISTICAL TECHNIQUES	DATA FOR ECONOMETRIC/STATISTICAL ANALYSIS (time-series, cross-sectional)	CHANGES OF PARAMETERS OVER TIME	SENSITIVITY ANALYSIS	SPECIAL [illegible]	[illegible] FOR A [illegible]	OFFICIAL [illegible]	VALIDITY [illegible]
	numerical & applied	behavioural definitional	stochastic linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	both	yes	-	yes	yes	no	yes
	numerical & applied	behavioural definitional	deterministic linear first order differences no differences	-	recursive	no	-	-	-	d.n.a.	description given	yes	yes	no	yes
	numerical & applied	behavioural technological definitional	deterministic linear	-	recursive	yes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	numerical & applied	behavioural definitional	deterministic linear no differences	-	independent	yes	impressions of experts econometric/statistical analysis	simple regression multiple regression	time-series	yes	description given	no	yes	no	no
	numerical & experimental	behavioural technological definitional	deterministic linear non-linear	-	recursive	yes	impressions of experts econometric/statistical analysis	multiple regression	time-series	yes	-	no	yes	no	no
	numerical & applied	behavioural technological legal-institutional definitional	deterministic linear no differences	-	independent	yes	tabulation of data impressions of experts other methods	-	-	no	-	yes	yes	yes	no
	numerical & experimental	legal-institutional definitional	deterministic linear no differences	-	independent	yes	econometric/statistical analysis other methods	multiple regression	cross-sectional	no	-	no	yes	yes	no
pendent	numerical & applied	definitional	deterministic stochastic linear no differences	-	recursive	yes	tabulation of data	-	-	no	description given	no	yes	yes	yes
	numerical & applied	technological definitional	deterministic linear no differences	yes, and program. model	d.n.a.	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	cross-sectional	yes	description given	no	yes	no	yes
	numerical & applied	behavioural technological legal-institutional definitional	stochastic linear no differences	-	independent	no	tabulation of data	-	-	yes	-	yes	yes	yes	yes
	numerical & applied	definitional	deterministic linear no differences	-	independent	no	tabulation of data impressions of experts	-	-	yes	description given	yes	no	d.n.a.	yes
[illegible]	numerical & applied	behavioural	stochastic linear no differences	-	independent	yes	econometric/statistical analysis	multiple regression other multivariate techniques other methods	cross-sectional	no	-	yes	no	d.n.a.	no
	numerical & applied	behavioural legal-institutional definitional	deterministic linear no differences	-	simultaneous	yes	tabulation of data impressions of experts	-	-	yes	-	yes	no	d.n.a.	no
	numerical & applied	technological	deterministic linear first order differences no differences	-	independent	no	tabulation of data impressions of experts	-	-	yes	description given	yes	yes	yes	no
	numerical & applied	behavioural technological legal-institutional definitional	deterministic stochastic linear non-linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	other multivariate techniques	both	yes	description given	yes	yes	yes	yes
endent	numerical & applied	behavioural	deterministic linear no differences	-	independent	no	tabulation of data econometric/statistical analysis	other multivariate techniques	cross-sectional	no	-	no	yes	no	yes

NAME OF COUNTRY	QUESTIONNAIRE NO.	MODEL SERIAL NO.	TITLE OF MODEL	RESPONDENT	TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTION OF MODEL	STATUS OF WORK	RELATIONSHIP OF MODEL TO OTHER SYSTEMS	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES
Germany	01	105	A University Capacity Model	Diplom-Volkswirt Hein	non-gov.	in progress	by itself	parts	higher	general	both	st
Germany	02	83	Student Forecasting Model, Carrying Through into First Employment	Dr. Alex	non-gov.	in progress	related	whole	all	all	both	
Germany	03	30	Descriptive Model of the Baden-Wurttemberg Education System	Mr. Klaus Schweikert	non-gov.	in progress	related	whole	all	all	both	
Germany	04	7	A Student Flow Model for General Secondary Education	Gruppe Bildungsplanung (Dr. Roeloffs)	prin. gov.	finished	related	parts	lower secondary upper secondary	general	both	
Germany	05	51	A University Student Forecasting Model	Gruppe Bildungsplanung (Dr. Roeloffs)	prin. gov.	finished	related	parts	higher	general	both	
Germany	06	38	A Teacher Supply and Demand Model for Secondary Education	Gruppe Bildungsplanung (Dr. Roeloffs)	prin. gov.	in progress	by itself	parts	lower secondary upper secondary	general	-	be
Germany	07	8	Student-Forecasting Model for Primary and Secondary Education	Dr. K. Schmittlein	prin. gov.	finished	by itself	parts	primary lower secondary upper secondary	vocational general	both	
Germany	08	106	A University Capacity Model	Mr. Frey	prin. gov.	in progress	by itself	whole	all	all	stocks	st
Germany	09	31	A Student Flow Model for Baden-Wurttemberg Higher Education	Dr. Ottwaska	prin. gov.	finished	related	parts	higher	general	both	st
Germany	10	39	An Enrolment Forecasting Model for Primary and Secondary Education in Baden-Wurttemberg	Dr. Ottwaska	prin. gov.	finished	related	parts	primary lower secondary upper secondary	general	both	st
Germany	11	84	A Manpower Supply Model for Baden-Wurttemberg	Dr. Ottwaska	prin. gov.	in progress	related	parts	higher	general	both	
Germany	12	40	A Model for Optimizing Teacher Utilization	Mr. F.A. Doring	non-gov.	in progress	by itself	parts	lower secondary upper secondary	general	stocks	be
Germany	13	1	Projection Model for School Expenditures	Mr. E. Schmitz	non-gov.	finished	related	parts	primary lower secondary upper secondary	vocational technical	stocks	st
Germany	14	107	Model of University Enrolment and Output for Schleswig-Holstein	Mr. V. Schmidt	u.	finished	related	parts	higher	general	both	be

STAGE OF WORK	RELATIONSHIP OF MODEL TO OTHER SYSTEMS	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITAL STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF MODEL	SUBSTANTIVE NATURE OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION
in progress	by itself	parts	higher	general	both	stocks	-	decision	other regular surveys	time-independent	numerical & applied	technological definitional	deterministic linear no differences	-
in progress	related	whole	all	all	both	-	-	forecasting	population census other regular surveys	medium-term	numerical & applied	definitional	deterministic linear no differences	-
in progress	related	whole	all	all	both	-	-	descriptive	other regular surveys special surveys	short-term	numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear no differences	-
finished	related	parts	lower secondary upper secondary	general	both	-	-	forecasting	population census other regular surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
finished	related	parts	higher	general	both	-	expenditures capital stocks costs	forecasting	population census other regular surveys special surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
in progress	by itself	parts	lower secondary upper secondary	general	-	both	-	forecasting	population census other regular surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
finished	by itself	parts	primary lower secondary upper secondary	vocational general	both	-	-	forecasting	population census other regular surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
in progress	by itself	whole	all	all	stocks	stocks	capital stocks	forecasting	other regular surveys special surveys	short-term	numerical & applied	technological legal-institutional definitional	deterministic linear no differences	-
finished	related	parts	higher	general	both	stocks	capital stocks	forecasting	other regular surveys special surveys	long-term	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear first-order differences no differences	-
finished	related	parts	primary lower secondary upper secondary	general	both	stocks	-	forecasting	population census	long-term	numerical & experimental	behavioural legal-institutional definitional	deterministic linear no differences	-
in progress	related	parts	higher	general	both	-	-	decision	other regular surveys	long-term	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear no differences	-
in progress	by itself	parts	lower secondary upper secondary	general	stocks	both	-	decision	population census special surveys	long-term	theoretical	behavioural technological legal-institutional definitional	deterministic linear	yes, and progra model
finished	related	parts	primary lower secondary upper secondary	vocational technical	stocks	stocks	expenditures capital stocks costs	forecasting	other regular surveys special surveys	medium-term	numerical & applied	behavioural technological legal-institutional	deterministic linear no differences	-
finished	related	parts	higher	general	both	both	-	forecasting	population census other regular surveys special surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-

STATUS OF WORK	RELATIONSHIP OF MODEL TO OTHER STUDIES	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITAL STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF MODEL	SUBSTANTIVE NATURE OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION
in progress	by itself	parts	higher	general	both	stocks	-	decision	other regular surveys	time-independent	numerical & applied	technological definitional	deterministic linear no differences	-
in progress	related	whole	all	all	both	-	-	forecasting	population census other regular surveys	medium-term	numerical & applied	definitional	deterministic linear no differences	-
in progress	related	whole	all	all	both	-	-	descriptive	other regular surveys special surveys	short-term	numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear no differences	-
finished	related	parts	lower secondary upper secondary	general	both	-	-	forecasting	population census other regular surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
finished	related	parts	higher	general	both	-	expenditures capital stocks costs	forecasting	population census other regular surveys special surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
in progress	by itself	parts	lower secondary upper secondary	general	-	both	-	forecasting	population census other regular surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
finished	by itself	parts	primary lower secondary upper secondary	vocational general	both	-	-	forecasting	population census other regular surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
in progress	by itself	whole	all	all	stocks	stocks	capital stocks	forecasting	other regular surveys special surveys	short-term	numerical & applied	technological legal-institutional definitional	deterministic linear no differences	-
finished	related	parts	higher	general	both	stocks	capital stocks	forecasting	other regular surveys special surveys	long-term	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear first-order differences no differences	-
finished	related	parts	primary lower secondary upper secondary	general	both	stocks	-	forecasting	population census	long-term	numerical & experimental	behavioural legal-institutional definitional	deterministic linear no differences	-
in progress	related	parts	higher	general	both	-	-	decision	other regular surveys	long-term	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear no differences	-
in progress	by itself	parts	lower secondary upper secondary	general	stocks	both	-	decision	population census special surveys	long-term	theoretical	behavioural technological legal-institutional definitional	deterministic linear	yes, and progra model
finished	related	parts	primary lower secondary upper secondary	vocational technical	stocks	stocks	expenditures capital stocks costs	forecasting	other regular surveys special surveys	medium-term	numerical & applied	behavioural technological legal-institutional	deterministic linear no differences	-
finished	related	parts	higher	general	both	both	-	forecasting	population census other regular surveys special surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-

ORIENTATION OF MODEL	SUBSTANTIVE NATURE OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION	NATURE OF EQUATION SYSTEM	COMPUTER USAGE	BASIS OF PARAMETER ESTIMATION	ECONOMETRIC/STATISTICAL TECHNIQUES	DATA FOR ECONOMETRIC/STATISTICAL ANALYSIS (time-series, cross-sectional)	CHANGES OF PARAMETERS OVER TIME	SENSITIVITY ANALYSIS	SPECIAL FEATURES	CONSTRUCTION BY OR FOR A GOVERNMENT AGENCY	OFFICIAL ACCEPTANCE	VALIDITY TESTS
numerical & applied	technological definitional	deterministic linear no differences	-	independent	no	impressions of experts	-	-	no	-	yes	yes	yes	no
numerical & applied	definitional	deterministic linear no differences	-	simultaneous	yes	econometric/statistical analysis	simple regression multiple regression	both	yes	-	no	yes	n.a.	no
numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear no differences	-	simultaneous	yes	tabulation of data econometric/statistical analysis	multiple regression	cross-sectional	yes	-	no	no	d.n.a.	no
numerical & applied	behavioural definitional	deterministic linear no differences	-	recursive	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	time-series	yes	-	yes	yes	yes	yes
numerical & applied	behavioural definitional	deterministic linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	time-series	yes	-	yes	yes	yes	yes
numerical & applied	behavioural definitional	deterministic linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	time-series	yes	description given	yes	yes	yes	yes
numerical & applied	behavioural definitional	deterministic linear no differences	-	simultaneous	yes	tabulation of data impressions of experts	-	-	yes	description given	yes	yes	yes	yes
numerical & applied	technological legal-institutional definitional	deterministic linear no differences	-	independent	yes	impressions of experts	-	-	no	description given	no	yes	yes	yes
numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear first-order differences no differences	-	simultaneous	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression other methods	both	yes	description given	yes	yes	yes	yes
numerical & experimental	behavioural legal-institutional definitional	deterministic linear no differences	-	recursive	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	time-series	yes	description given	yes	yes	yes	yes
numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear no differences	-	simultaneous	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression other methods	both	yes	description given	yes	yes	yes	yes
theoretical	behavioural technological legal-institutional definitional	deterministic linear	yes, and progrem. model	-	no	tabulation of data	-	-	no	-	yes	no	d.n.a.	no
numerical & applied	behavioural technological legal-institutional	deterministic linear no differences	-	block-recursive	no	tabulation of data impressions of experts	-	-	yes	description given	yes	yes	yes	yes
numerical & applied	behavioural definitional	deterministic linear no differences	-	simultaneous	yes	tabulation of data	-	-	yes	description given	yes	no	d.n.a.	yes

NAME OF COUNTRY	QUESTIONNAIRE NO.	MODEL SERIAL NO.	TITLE OF MODEL	RESPONDENT	TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTION OF MODEL	STATUS OF WORK	[illegible]	[illegible]	[illegible]	[illegible]
Iceland	01	18	An Approach to Measure and Change the Output Structure of an Educational System	Dr. Oddur Benediktsson	other gov.	finished	by itself	parts	primary lower secondary upper secondary	general
Ireland	01	43	Secondary School Teacher Quota Model	Mr. William Hyland	prin. gov.	in progress	by itself	parts	lower secondary upper secondary	general
Ireland	02	14	Student Enrolment Model for Counties	Mr. William Hyland	prin. gov.	in progress	by itself	parts	primary lower secondary upper secondary	general
Ireland	03	15	Local Student Enrolment Model	Mr. William Hyland	prin. gov.	in progress	by itself	parts	primary lower secondary	general
Ireland	04	115	Analysis of Curriculum Options and Their Relationship to	Mr. William Hyland	prin. gov.	in progress	by itself	parts	lower secondary upper secondary	general
Ireland	05	16	An Educational Flow Forecasting Model	Dr. E.D. Francis	u.	in progress	by itself	whole	all	all
Ireland	06	17	Control Concepts in Computer Aided Educational Planning	Dr. E.D. Francis	u.	in progress	by itself	whole	all	all
Ireland	07	61	A Generalised Method for Allocating Academic Departments to Alternative, Separate Sites	Mr. John Cantwell	other gov.	finished	by itself	parts	higher	general
Italy	01	92	Demand and Supply of Graduates of Higher Education in Italy	M. Nicola Cacace M. Mario d'Ambrosio	non-gov.	finished	related	parts	higher	general
Italy	02	44	Allocation of Teaching Personnel in the Italian Universities	Professor Bernardo Colombo Dr. Ugo Trivellato	u.	finished	by itself	parts	higher	general
Italy	03	62	Budgetary Allocation for Construction in the Pre-University School System	Professor Felice Vian	u.	planned; not yet started	by itself	parts	primary lower secondary upper secondary	general
Japan	01	97	Supply and Demand Model of Graduates Beyond the Compulsory Level	Mr. Teruhiko Wakana	prin. gov.	finished	related	parts	all	general
Japan	02	98	Forecasting Model for Manpower Supply	Mr. Masao Onta	other gov.	finished	related	parts	lower secondary upper secondary higher	general
Japan	03	79	Nation-Wide Regional Econometric Model	Mr. Yoichi Ohkita	other gov.	finished	related	parts	primary lower secondary upper secondary	general
Japan	04	99	Forecasting Model for the Demand for Vocationally-Trained Skilled and Semi-Skilled Workers	Mr. Shuichiro Ogura	other gov.	in progress	related	parts	lower secondary	vocational
Japan	05	28	Forecasting Model of New Entrants into Upper Secondary Schools by Course in Kagoshima Prefecture	Mr. Harumi Sakaue	other gov.	finished	related	parts	upper secondary	general
Japan	06	29	Forecasting Model of the School Population in Osaka Prefecture	Mr. Yoshitomo Tamane	other gov.	finished	related	parts	primary lower secondary upper secondary	general
Japan	07	104	Decision Model of the Optimal Amount of Education for Individuals	Mr. Hajime Oniki	u.	in progress	related	parts	higher	general
Japan	08	80	Historical Analysis of the Numbers of Students in Higher Education in Six Countries	Mr. Morikazu Ushiogi	u.	in progress	related	parts	higher	general

RELATIONSHIP OF TO OTHER SYSTEMS	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITA STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF	SUBSTANTIVE [illegible] OF RELATIONSHIPS	[illegible]	[illegible]	[illegible]
itself	parts	primary lower secondary upper secondary	general	both	-	-	forecasting	other sources	long-term	numerical & applied	definitional	deterministic linear no differences	-	recursive
itself	parts	lower secondary upper secondary	general	stocks	stocks	-	simulation without stochastic elements	other regular surveys	medium-term	numerical & applied	technological legal-institutional	deterministic linear non-linear no differences	-	independent
itself	parts	primary lower secondary upper secondary	general	stocks	-	-	forecasting	other regular surveys	long-term	numerical & applied	definitional	deterministic linear no differences	-	independent
itself	parts	primary lower secondary	general	both	-	-	forecasting	other regular surveys special surveys	medium-term	numerical & applied	definitional	deterministic linear no differences	-	independent
itself	parts	lower secondary upper secondary	general	stocks	stocks	-	descriptive	other regular surveys	time-independent	numerical & applied	behavioural definitional	deterministic linear no differences	-	independent
itself	whole	all	all	both	-	-	forecasting	other regular surveys	long-term	numerical & applied	definitional	deterministic linear no differences	-	independent
itself	whole	all	all	stocks	-	-	decision	other regular surveys	medium-term	theoretical	definitional	n.a.	n.a.	n.a.
itself	parts	higher	general	stocks	-	costs	decision	other sources	long-term	numerical & applied	definitional	deterministic linear no differences	yes, and program. model	-
lated	parts	higher	general	-	-	-	forecasting	population census other regular surveys	long-term	numerical & experimental	behavioural	deterministic linear	-	independent
itself	parts	higher	general	stocks	both	-	decision	other sources	time-independent	numerical & experimental	-	linear	n.a.	independent
itself	parts	primary lower secondary upper secondary	general	-	-	capital stocks	decision	population census other regular surveys	time-independent	theoretical	n.a.	n.a.	n.a.	n.a.
elated	parts	all	general	flows	-	-	forecasting	population census other regular surveys special surveys	medium-term	numerical & experimental	definitional	deterministic linear no differences	-	block-recu
elated	parts	lower secondary upper secondary higher	general	both	-	-	forecasting	other regular surveys	medium-term	numerical & experimental	behavioural definitional	deterministic linear no differences	-	recursive
elated	parts	primary lower secondary upper secondary	general	-	-	capital stocks	forecasting	other regular surveys	medium-term	numerical & applied	behavioural technological legal-institutional definitional	deterministic stochastic linear first-order differences no differences	-	recursive
elated	parts	lower secondary	vocational	both	both	-	forecasting	population census other regular surveys	long-term	numerical & applied	behavioural	deterministic linear no differences	-	-
elated	parts	upper secondary	general	flows	-	-	forecasting	population census other regular surveys special surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear non-linear no differences	-	block-recu
elated	parts	primary lower secondary upper secondary	general	flows	-	-	simulation without stochastic elements	population census other regular surveys	medium-term	numerical & experimental	definitional	deterministic linear no differences	-	simultaneo
elated	parts	higher	general	both	stocks	expenditures capital stocks	descriptive	other regular surveys	time-independent	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear non-linear first-order differences no differences	yes, and program. model	-
elated	parts	higher	general	stocks	-	-	descriptive	population census	time-independent	numerical & applied	behavioural	stochastic non-linear linear	-	independen

	ORIENTATION OF [illegible]	SUBSTANTIVE NATURE OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTIONS	NATURE OF EQUATION SYSTEM	COMPUTER USAGE	BASIS OF PARAMETER ESTIMATION	ECONOMETRIC/STATISTICAL TECHNIQUES	DATA FOR ECONOMETRIC/STATISTICAL ANALYSIS (time-series, cross-sectional)	CHANGES OF PARAMETERS OVER TIME	SENSITIVITY ANALYSIS	SPECIAL FEATURES	CONSTRUCTED [illegible] FOR A [illegible]	OFFICIAL [illegible]	VALIDITY [illegible]
	numerical & applied	definitional	deterministic linear no differences	-	recursive	yes	other methods	-	-	no	-	no	yes	no	yes
e	numerical & applied	technological legal-institutional	deterministic linear non-linear no differences	-	independent	yes	tabulation of data	-	-	no	description given	yes	yes	no	no
	numerical & applied	definitional	deterministic linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	time-series	yes	-	no	yes	no	no
e	numerical & applied	definitional	deterministic linear no differences	-	independent	yes	tabulation of data	-	-	no	-	yes	yes	no	no
ndent	numerical & applied	behavioural definitional	deterministic linear no differences	-	independent	yes	tabulation of data econometric/statistical analysis	other multivariate methods	n.a.	no	-	no	yes	no	no
	numerical & applied	definitional	deterministic linear no differences	-	independent	yes	tabulation of data	-	-	no	-	yes	yes	no	yes
e	theoretical	definitional	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	numerical & applied	definitional	deterministic linear no differences	yes, and program. model	-	yes	tabulation of data	-	-	yes	description given	no	yes	yes	no
	numerical & experimental	behavioural	deterministic linear	-	independent	no	tabulation of data impressions of experts econometric/statistical analysis	multiple regression	cross-sectional	no	-	no	no	d.n.a.	no
ndent	numerical & experimental	-	linear	n.a.	independent	no	impressions of experts	-	-	no	-	no	no	d.n.a.	no
ndent	theoretical	n.a.	n.a.	n.a.	n.a.	n.a.	tabulation of data	-	-	no	-	no	yes	no	no
	numerical & experimental	definitional	deterministic linear no differences	-	block-recursive	no	tabulation of data	other methods	-	yes	-	no	yes	yes	no
	numerical & experimental	behavioural definitional	deterministic linear no differences	-	recursive	yes	tabulation of data	other methods	both	yes	-	no	no	d.n.a.	yes
	numerical & applied	behavioural technological legal-institutional definitional	deterministic stochastic linear first-order differences no differences	-	recursive	yes	econometric/statistical analysis	other methods	both	no	-	no	yes	yes	yes
	numerical & applied	behavioural	deterministic linear no differences	-	-	no	impressions of experts	-	-	no	-	no	yes	yes	no
	numerical & applied	behavioural definitional	deterministic linear non-linear no differences	-	block-recursive	no	econometric/statistical analysis	simple regression	both	no	-	no	yes	yes	yes
	numerical & experimental	definitional	deterministic linear no differences	-	simultaneous	yes	tabulation of data	-	-	no	-	yes	no	d.n.a.	yes
nt	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear non-linear first-order differences no differences	yes, and program. model	-	yes	tabulation of data econometric/statistical analysis	multiple regression other multivariate techniques	both	no	-	no	no	d.n.a.	yes
nt	numerical & applied	behavioural	stochastic non-linear linear	-	independent	yes	econometric/statistical analysis	simple regression multiple regression	time-series	no	-	no	no	n.a.	n.a.

NAME OF CO	QUESTIONNAI	MODEL SERIA	TITLE OF M	RESPONDENT	TYPE OF INS RESPONSIBL CONSTRUCTI MODEL	STATUS OF M	RELATIONSH TO OTHER	SCOPE OF M	LEVEL OF ED	TYPE OF ED	
Netherlands	01	118	Latent Factor Analysis of the Empirical Field of the Rotterdam School of Economics	Professor W. Begeer	u.	finished	by itself	parts	higher	general	-
Netherlands	02	119	Description of the Selection Process at the Rotterdam School of Economics	Professor W. Begeer	u.	in progress	by itself	parts	higher	general	both
Netherlands	03	75	Short-Term Forecasting Model for the Netherlands Educational System	Mr. J. Passenier	other gov.	in progress	by itself	whole	all	all	both
Netherlands	04	76	Medium-Term Forecasting Model for the Netherlands Educational System	Mr. J. Passenier	other gov.	in progress	by itself	whole	all	all	both
Netherlands	05	77	Long-Term Forecasting Model for the Netherlands Educational System	Mr. J. Passenier	other gov.	finished	related	whole	all	all	stocks
Netherlands	06	94	Assessment of the Supply of Highly Skilled Personnel	Mr. J. Passenier	other gov.	finished	related	parts	lower secondary upper secondary higher	general	both
Norway	01	19	A Model for Predicting Educational Enrolment and Output in the Post-Secondary Education System of Norway	Mrs. Eva Birkeland	other gov.	finished	by itself	parts	higher	general	both
Norway	02	63	A Higher Education Resource (Cost) Model	Mrs. Eva Birkeland	other gov.	in progress	by itself	parts	higher	general	-
Norway	03	20	Human Flow of the Norwegian Educational System	Professor T. Thonstad	u.	finished	by itself	parts	lower secondary upper secondary higher	general	both
Norway	04	93	Long-Term Manpower Demand Model	Mr. Leif Asbjørn Nygaard	other gov.	finished	related	whole	all	all	both
Norway	05	21	Model for Determining the Optimum Allocation of Entrants to Post-Secondary Education	Mr. Birger Fredriksen	u.	finished	by itself	parts	higher	general	both
Norway	06	54	Cost Model for Primary Education	Mr. K. Eide Mr. O. Magnussen	prin. gov.	finished	by itself	parts	primary	general	stocks
Norway	07	65	Current Costs and Demand for Teachers in the Upper Level Secondary Schools and the Vocational Schools for Industry	Mr. O. Magnussen	prin. gov.	finished	by itself	parts	upper secondary	vocational	stocks
Norway	08	116	I. Models for Calculation of Current Costs in Universities	Mr. O. Magnussen	prin. gov.	finished	by itself	parts	higher	general	stocks
Norway	09	117	II. Models for Calculation of Current Costs in Universities	Mr. O. Magnussen	prin. gov.	finished	by itself	parts	higher	general	flows
Norway	10	45	Study on the Demand for and Supply of Teachers	Mr. Kjell Eide	prin. gov.	finished	by itself	parts	primary lower secondary upper secondary	general	both
Norway	11	74	Model of Education Manpower Input per Unit of Exports, Domestic Consumption and Investment for Norway	Mr. Tore Kobberstad	u.	finished	related	whole	all	all	stocks
Portugal	01	78	Simulation Model of the Portuguese Educational System	Eng. Antonio Leite Garci	prin. gov.	finished	related	whole	all	all	both
Sweden	01	26	Model for Projections of the Swedish Educational System	Mr. Goran Svanfeldt	gov. stat.	finished	by itself	parts	higher	general	both
Switzerland	01	27	Model of the Educational System of Canton Vaud	Mr. J.P. Schellhorn	prin. gov.	in progress	related	whole	all	all	both
Switzerland	02	50	Teacher Supply and Demand Model for the Canton Geneva	Mr. W. Hutmacher	prin. gov.	in progress	by itself	parts	primary lower secondary upper secondary	general	stocks

RELATIONSHIP TO OTHER	SCOPE OF	LEVEL OF	TYPE OF	STUDENT VARI (stock, fl	TEACHER VARI (stock, fl	EXPENDITURE STOCK AND VARIABLE	TYPE OF	SOURCES OF	TIME HORIZON	ORIENTATION	[illegible]	[illegible]	[illegible]	[illegible]
by itself	parts	higher	general	-	-	-	simulation with stochastic elements	other sources	time-independent	numerical & applied	behavioural	deterministic non-linear no differences	-	
by itself	parts	higher	general	both	-	-	descriptive	other sources	long-term	theoretical	-	n.a.	n.a.	
by itself	whole	all	all	both	flows	-	forecasting	population census other regular surveys special surveys	short-term	numerical & applied	definitional	deterministic linear no differences	-	block-re
by itself	whole	all	all	both	flows	-	forecasting	population census other regular surveys special surveys	long-term	theoretical	definitional	deterministic linear no differences	-	block-re
related	whole	all	all	stocks	stocks	expenditures costs	forecasting	population census other regular surveys	long-term	numerical & applied	legal-institutional definitional	deterministic linear no differences	-	simultan
related	parts	lower secondary upper secondary higher	general	both	both	-	forecasting	population census other regular surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-	recursiv
by itself	parts	higher	general	both	-	-	forecasting	other regular surveys special surveys	long-term	numerical & applied	legal-institutional definitional	deterministic linear no differences	-	recursiv
by itself	parts	higher	general	-	both	expenditures costs	forecasting	other sources	long-term	numerical & applied	technological definitional	linear	-	d.n.
by itself	parts	lower secondary upper secondary higher	general	both	stocks	-	forecasting	other regular surveys	long-term	numerical & applied	technological definitional	deterministic linear no differences	-	recursiv
related	whole	all	all	both	-	-	forecasting	population census	long-term	numerical & applied	technological definitional	deterministic linear non-linear no differences	-	independ
by itself	parts	higher	general	both	-	-	decision	special surveys	long-term	numerical & applied	definitional	deterministic linear no differences	yes, and program. model	d.n.
by itself	parts	primary	general	stocks	stocks	expenditures	forecasting	population census other regular surveys	short-term	numerical & applied	technological legal-institutional definitional	deterministic linear no differences	-	simultan
by itself	parts	upper secondary	vocational	stocks	stocks	expenditures	forecasting	other regular surveys	long-term	numerical & applied	behavioural technological legal-institutional definitional	deterministic non-linear no differences	-	d.n.
by itself	parts	higher	general	stocks	stocks	expenditures	descriptive	other sources	time-independent	numerical & applied	-	deterministic linear no differences	-	simultan
by itself	parts	higher	general	flows	stocks	capital stocks	descriptive	-	time-independent	theoretical	behavioural technological definitional	deterministic linear first-order differences no differences	-	independ
by itself	parts	primary lower secondary upper secondary	general	both	stocks	-	forecasting	other regular surveys	short-term	numerical & applied	n.a.	n.a.	n.a.	n.a
related	whole	all	all	stocks	-	-	descriptive	population census	time-independent	numerical & applied	technological definitional	deterministic linear no differences	-	simultan
related	whole	all	all	both	stocks	expenditures capital stock	simulation without stochastic elements	population census other regular surveys special surveys	long-term	numerical & experimental	behavioural technological legal-institutional definitional	deterministic linear first order differences	-	block-re
by itself	parts	higher	general	both	-	-	forecasting	other regular surveys special surveys	long-term	numerical & applied	legal-institutional definitional	deterministic linear no differences	-	recursiv
related	whole	all	all	both	both	-	simulation without stochastic elements	population census other regular surveys	medium-term	numerical & experimental	definitional	deterministic linear no differences	-	recursiv
by itself	parts	primary lower secondary upper secondary	general	stocks	both	-	forecasting	n.a.	medium-term	theoretical	behavioural technological definitional	deterministic linear no differences	-	independ

ORIENTATION	SUBSTANTIVE [illegible]	MATHEMATICAL	EXISTENCE [illegible] PREFERENCE	NATURE OF [illegible]	COMPUTER [illegible]	BASIS OF [illegible]	[illegible]	DATA FOR [illegible] STATISTICAL [illegible] (time-[illegible]	CHANGES OF [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
merical & pplied	behavioural	deterministic non-linear no differences	-	-	yes	tabulation of data	-	-	yes	-	no	no	d.n.a.	no
eoretical	-	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	yes	no	d.n.a.	n.a.
merical & pplied	definitional	deterministic linear no differences	-	block-recursive	yes	tabulation of data	-	-	no	-	no	yes	yes	yes
eoretical	definitional	deterministic linear no differences	-	block-recursive	n.a.	econometric/statistical analysis	simple regression multiple regression	both	yes	-	no	yes	no	no
merical & pplied	legal-institutional definitional	deterministic linear no differences	-	simultaneous	yes	impressions of experts econometric/statistical analysis	simple regression multiple regression other multivariate techniques	both	yes	-	no	yes	yes	yes
erical & pplied	behavioural definitional	deterministic linear no differences	-	recursive	yes	impressions of experts econometric/statistical analysis	simple regression multiple regression other multivariate techniques	both	yes	description given	no	yes	yes	yes
merical & applied	legal-institutional definitional	deterministic linear no differences	-	recursive	yes	tabulation of data econometric/statistical analysis	simple regression multiple regression other multivariate techniques	both	yes	description given	yes	yes	yes	yes
merical & applied	technological definitional	linear	-	d.n.a.	yes	tabulation of data	-	-	yes	-	no	yes	no	no
rical & applied	technological definitional	deterministic linear no differences	-	recursive	yes	tabulation of data impressions of experts	-	-	no	description given	yes	yes	no	yes
rical & applied	technological definitional	deterministic linear non-linear no differences	-	independent	yes	tabulation of data	-	-	yes	-	no	yes	no	yes
rical & applied	definitional	deterministic linear no differences	yes, and program. model	d.n.a.	no	tabulation of data	-	-	no	description given	no	yes	no	no
rical & applied	technological legal-institutional definitional	deterministic linear no differences	-	simultaneous	no	tabulation of data impressions of experts	-	-	yes	description given	yes	yes	yes	yes
rical & applied	behavioural technological legal-institutional definitional	deterministic non-linear no differences	-	d.n.a.	no	tabulation of data impressions of experts econometric/statistical analysis	multiple regression	time-series	no	description given	no	yes	yes	yes
rical & plied	-	deterministic linear no differences	-	simultaneous	no	tabulation of data	-	-	no	description given	no	yes	no	no
retical	behavioural technological definitional	deterministic linear first-order differences no differences	-	independent	no	-	-	-	d.n.a.	-	no	no	d.n.a.	no
rical & plied	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
rical & plied	technological definitional	deterministic linear no differences	-	simultaneous	yes	tabulation of data	-	-	no	description given	no	no	d.n.a.	no
rical & perimental	behavioural technological legal-institutional definitional	deterministic linear first order differences	-	block-recursive	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	both	no	description given	no	yes	no	yes
rical & plied	legal-institutional definitional	deterministic linear no differences	-	recursive	no	tabulation of data impressions of experts econometric/statistical analysis	simple regression	both	yes	description given	yes	yes	yes	yes
rical & perimental	definitional	deterministic linear no differences	-	recursive	yes	tabulation of data	-	-	no	-	yes	yes	no	no
etical	behavioural technological definitional	deterministic linear no differences	-	independent	n.a.	-	-	-	d.n.a.	-	no	yes	no	no

NAME OF COUNTRY	QUESTIONNAIRE NO.	MODEL SERIAL NO.	TITLE OF MODEL	RESPONDENT	TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTION OF MODEL	STATUS OF WORK	RELATIONSHIP OF	SCOPE OF THE	LEVEL OF	TYPE OF	VARIABLES
Turkey	01	96	Long-Term Iterative Forecasting Model for Manpower Needs of the Economy	Mme. Kizmir Mme. Onsan Mme. Soy	prin. gov.	finished	related	whole	all	all	both
Turkey	02	67	Cost Model for Turkish Higher Education	Mr. K. Eide	ind.	finished	by itself	parts	higher	general	stock
United Kingdom	01	66	Model to Determine Government Grants to Local Government Authorities in Scotland	Mr. Russell Millhouse	prin. gov.	finished	related	parts	primary lower secondary upper secondary	general	stock
United Kingdom	02	22	Student Forecasting Model for Scotland	Mr. William Fearnley	prin. gov.	in progress	related	parts	all	general	both
United Kingdom	03	46	Teacher Supply Model for Scotland	Mr. William Fearnley	prin. gov.	in progress	by itself	parts	primary lower secondary upper secondary	general	-
United Kingdom	04	47	Teacher Demand Model for Scotland	Mr. Bennett	prin. gov.	in progress	by itself	parts	lower secondary upper secondary	general	stock
United Kingdom	05	2	A Demographic Input-Output Model for Educational Forecasting and Planning	Dr. Richard Stone	u.	in progress	related	whole	all	all	both
United Kingdom	06	3	Model of Student Flows in the British Educational System with Emphasis on the Post-Secondary Level to Higher Education Movements	Mr. Peter Armitage Miss Celia Phillips	u.	in progress	related	whole	all	all	both
United Kingdom	07	103	Rates of Return to Different Types and Levels of Education with Detailed Information on the Electrical Engineering Industry	Professor Mark Blaug	u.	in progress	related	parts	upper secondary higher	all	flows
United Kingdom	08	120	Measurement of Productivity of Educational Institutions (Higher, Secondary and Primary)	Professor Mark Blaug	u.	finished	related	parts	upper secondary higher	general	flows
United Kingdom	09	23	General Models for Pupil Forecasting for Local Government Authorities with Application to Three Local Authorities	Dr. Kenneth Groom	non-gov.	finished	related	parts	primary lower secondary upper secondary	general	stock
United Kingdom	10	24	Factors Affecting Staying on at School (past the compulsory leaving age) at the Local Government Authority Level	Dr. Kenneth Groom	non-gov.	finished	related	parts	upper secondary	general	both
United Kingdom	11	37	Factors Influencing Choice of Higher Education	Professor G.A. Barnard	u.	in progress	related	parts	upper secondary	general	both
United Kingdom	12	48	Student Forecasting and Teacher Mobility Models for the City of London	Mr. Alan Little	prin. gov.	finished	related	parts	primary lower secondary upper secondary	general	stock
United Kingdom	13	25	Projection of Numbers in Higher Education	Miss Julia Weatherburn	prin. gov.	finished	by itself	parts	higher	vocational technical general	both
United Kingdom	14	49	Teacher Supply and Demand Model	Miss Julia Weatherburn	prin. gov.	finished	by itself	parts	primary lower secondary upper secondary	teacher training	-
United Kingdom	15	95	Integrated Set of Education and Manpower Models	Miss Julia Weatherburn	prin. gov.	in progress	related	parts	higher	general	both
United States	01	101	Contribution of Educational Inputs to Economic and Non-Economic Behavioural Outputs	Dr. F. Thomas Juster	non-gov.	planned; not yet started	related	parts	higher	general	flows
United States	02	102	The Effect of Education on Economic Variables	Mr. Gary Becker	non-gov.	in progress	related	parts	upper secondary higher	general	flows

[illegible]	RELATIONSHIP OF [illegible] TO OTHER [illegible]	SCOPE OF THE [illegible]	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITAL STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF [illegible]	[illegible] OF [illegible]	[illegible]	[illegible]
[illegible]	related	whole	all	all	both	both	-	forecasting	population census other regular surveys special surveys	long-term	numerical & applied	behavioural definitional	deterministic linear first order differences	yes, and progrm. model
[illegible]	by itself	parts	higher	general	stocks	stocks	expenditures costs	descriptive	-	time-independent	theoretical	technological legal-institutional definitional	deterministic linear non-linear no differences	-
[illegible]	related	parts	primary lower secondary upper secondary	general	stocks		expenditures capital stocks	decision	population census other regular surveys	short-term	numerical & applied	legal-institutional	deterministic linear non-linear first order differences no differences	-
progress	related	parts	all	general	both	-	-	forecasting	population census other regular surveys special surveys	long-term	numerical & applied	behavioural definitional	deterministic linear no differences	-
progress	by itself	parts	primary lower secondary upper secondary	general	-	both	-	forecasting	other regular surveys special surveys	long-term	numerical & applied	definitional	stochastic linear no differences	-
progress	by itself	parts	lower secondary upper secondary	general	stocks	stocks	-	simulation without stochastic elements	other regular surveys special surveys	short-term	numerical & applied	technological definitional	deterministic linear non-linear no differences	-
progress	related	whole	all	all	both	-	expend. [illegible] costs	forecasting	other regular surveys special surveys	long-term	numerical & applied	behavioural definitional	deterministic linear first order differences	-
progress	related	whole	all	all	both	both	[illegible]	forecasting	population census other regular surveys special surveys	long-term	numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear non-linear first order differences no differences	-
progress	related	parts	upper secondary higher	all	flows	-	[illegible]	descriptive	special surveys	time-independent	numerical & applied	-	deterministic linear non-linear no differences	-
[illegible]	related	parts	upper secondary higher	general	flows	stocks	[illegible]	descriptive	other regular surveys	time-independent	numerical & applied	-	deterministic linear non-linear no differences	-
[illegible]	related	parts	primary lower secondary upper secondary	general	stocks	-	-	forecasting	population census special surveys	medium-term	numerical & applied	behavioural definitional	stochastic linear no differences	-
[illegible]	related	parts	upper secondary	general	both	stocks	capital stocks	forecasting	population census	short-term	numerical & applied	behavioural definitional	stochastic linear no differences	-
progress	related	parts	upper secondary	general	both	stocks	-	descriptive	population census other regular surveys special surveys	medium-term	numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear no differences	-
[illegible]	related	parts	primary lower secondary upper secondary	general	stocks	both	-	forecasting	other regular surveys	medium-term	numerical & applied	behavioural definitional	deterministic linear first order differences no differences	-
[illegible]	by itself	parts	higher	vocational technical general	both	-	expenditures	forecasting	other regular surveys	long-term	numerical & applied	definitional	deterministic linear no differences	-
[illegible]	by itself	parts	primary lower secondary upper secondary	teacher training	-	both	-	forecasting	other sources	long-term	numerical & applied	definitional	linear first order differences second or higher-order differences no differences	-
progress	related	parts	higher	general	both	-	-	forecasting	other regular surveys special surveys	long-term	numerical & applied	-	n.a.	-
[illegible]	related	parts	higher	general	flows	both	expenditures	descriptive	population census other regular surveys	time-independent	numerical & applied	behavioural	stochastic linear non-linear	-
[illegible]	related	parts	upper secondary higher	general	flows	-	expenditures capital stocks costs	descriptive	population census other regular surveys	time-independent	numerical & applied	behavioural	stochastic linear non-linear	-

ORIENTATION OF	SUBSTANTIVE BA OF RELATIO	MATHEMATICAL F	EXISTENCE OF PREFERENCE FUNC	NATURE OF EQUATI SYSTEM	COMPUTER USAGE	BASIS OF PARA ESTIMATION	ECONOMETRIC/ TECHNIQU	DATA FOR ECONO STATISTICAL (time-series, sectional)	CHANGES OF OVER TI	SENSITIVITY	SPECIAL	[illegible]	OFFICIAL	VALIDITY
numerical & applied	behavioural definitional	deterministic linear first order differences	yes, and program. model	independent	no	tabulation of data	-	-	no	-	no	yes	yes	no
theoretical	technological legal-institutional definitional	deterministic linear non-linear no differences	-	independent	no	-	-	-	d.n.a.	-	no	yes	no	no
numerical & applied	legal-institutional	deterministic linear non-linear first order differences no differences	-	independent	yes	tabulation of data impressions of experts other methods	-	-	yes	description given	yes	yes	yes	yes
numerical & applied	behavioural definitional	deterministic linear no differences	-	independent	yes	tabulation of data econometric/statistical analysis	simple regression	time-series	yes	description given	yes	yes	yes	yes
numerical & applied	definitional	stochastic linear no differences	-	recursive	yes	tabulation of data	-	-	no	-	yes	yes	yes	yes
numerical & applied	technological definitional	deterministic linear non-linear no differences	-	independent	yes	tabulation of data impressions of experts	-	-	no	description given	yes	yes	yes	yes
numerical & applied	behavioural definitional	deterministic linear first order differences	-	simultaneous	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	time-series	yes	-	no	yes	no	no
numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear non-linear first order differences no differences	-	simultaneous	yes	tabulation of data econometric/statistical analysis	simple regression multiple regression other multivariate techniques other methods	both	yes	-	yes	yes	no	no
numerical & applied	-	deterministic linear non-linear no differences	-	recursive	yes	tabulation of data	-	-	n.a.	description given	yes	no	d.n.a.	no
numerical & applied	-	deterministic linear non-linear no differences	-	independent	no	tabulation of data impressions of experts	-	-	yes	description given	no	no	d.n.a.	no
numerical & applied	behavioural definitional	stochastic linear no differences	-	independent	yes	tabulation of data econometric/statistical analysis	multiple regression	time-series	yes	description given	yes	yes	yes	yes
numerical & applied	behavioural definitional	stochastic linear no differences	-	independent	yes	tabulation of data econometric/statistical analysis	multiple regression	both	yes	-	yes	yes	no	no
numerical & applied	behavioural legal-institutional definitional	deterministic stochastic linear no differences	-	block-recursive	yes	tabulation of data econometric/statistical analysis	simple regression multiple regression other multivariate techniques	cross-sectional	no	description given	yes	yes	no	yes
numerical & applied	behavioural definitional	deterministic linear first order differences no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	both	yes	-	no	yes	yes	yes
numerical & applied	definitional	deterministic linear no differences	-	recursive	yes	other methods	-	-	no	-	yes	yes	yes	no
numerical & applied	definitional	linear first order differences second or higher-order differences no differences	-	recursive	yes	-	-	-	no	description given	yes	yes	yes	no
numerical & applied	-	n.a.	-	block-recursive	yes	other methods	-	-	n.a.	-	yes	yes	no	no
numerical & applied	behavioural	stochastic linear non-linear	-	independent	yes	econometric/statistical analysis	multiple regression other multivariate techniques	cross-sectional	no	-	yes	no	d.n.a.	no
numerical & applied	behavioural	stochastic linear non-linear	-	independent	yes	econometric/statistical analysis	simple regression multiple regression other multivariate techniques	cross-sectional	yes	-	n.a.	n.a.	n.a.	n.a.

NAME OF COUNTRY	QUESTIONNAIRE NO.	MODEL SERIAL NO.	TITLE OF MODEL	RESPONDENT	TYPE OF INSTITUTION RESPONSIBLE FOR CONSTRUCTION OF MODEL	STATUS OF MODEL	RELATIONSHIP OF MODEL TO OTHER MODELS	SCOPE OF THE MODEL	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stocks/flows)
United States	03	33	Model of Sectoral Demand for Public and Private Higher Education	Mr. John Bishop	u.	in progress	by itself	parts	higher	general	both
United States	04	57	The Optimal Pattern of Subsidy of Undergraduate Education When Growth and Redistribution are Part of the Objective Function	Mr. John Bishop	u.	in progress	by itself	parts	higher	general	stocks
United States	05	121	Model of Student Achievement as a Function of Teacher and School Characteristics	Mr. Michael Parti	u.	in progress	by itself	parts	primary lower secondary upper secondary	general	both
United States	06	58	Student and Resource Inputs to Higher Education and Their Effect on Output	Mr. Alan E. Bayer	non-gov.	in progress	related	parts	higher	general	both
United States	07	59	Demand for Higher Education as a Function of Family Income	Dr. Steven Hoenack	non-gov.	in progress	related	parts	higher	general	flows
United States	08	70	Washington Center for Metropolitan Studies City I	Mr. Thomas Clary	prin. gov.	finished	related	whole	all	all	stocks
United States	09	4	Projections of Educational Statistics to 1977-78	Dr. Kenneth Simon	prin. gov.	finished	related	whole	all	all	both
United States	10	122	Determinants of the Quality of Higher Education	Dr. Joseph Froomkin	prin. gov.	finished	by itself	parts	higher	general	both
United States	11	71	A Dynamic Linear Programming Model for Educational Planning with Application to Morocco	Dr. Frederick L. Golladay	u.	finished	related	whole	all	all	both
United States	12	42	The Supply and Demand for College Teachers	Mr. A.M. Cartter	non-gov.	finished	by itself	parts	higher	general	stocks
United States	13	13	Demonstration of Application of Cohort Analysis Techniques for Projecting Enrolment and Degree Data in Higher Education	Mr. Justin Lewis	other gov.	in progress	related	parts	higher	general	both
United States	14	34	The Production of College Graduates	Mr. Lewis J. Perl	u.	in progress	by itself	parts	higher	general	flows
Yugoslavia	01	100	The Development of Education in Yugoslavia in the Period 1966 - 1970 and the Adaptation to the Needs of the Economy and Society	Mr. Slavko Koričančić	prin. gov.	finished	related	whole	all	all	both
International Organization	01	81	Generalized Simulation Model of an Educational System and its Relation to the Manpower System	Mr. B. Solomon Mr. J. Auerhan	int. org.	finished	related	whole	all	all	both
International Organization	02	6	Generalized Simulation Model of an Educational System	Mrs. Brita Schwarz	int. org.	finished	related	whole	all	all	-
International Organization	03	82	Global Accounts for Manpower and Education (G.A.M.E. Model)	Dr. Abdul G. Khan Dr. Paul LeVasseur	int. org.	in progress	by itself	whole	all	all	both
International Organization	04				int. org.	finished	related	whole	all	all	both

SCOPE OF THE M	LEVEL OF EDUCATION	TYPE OF EDUCATION	STUDENT VARIABLES (stock, flow)	TEACHER VARIABLES (stock, flow)	EXPENDITURE, CAPITAL STOCK AND COST VARIABLES	TYPE OF MODEL	SOURCES OF DATA	TIME HORIZON	ORIENTATION OF M	SUBSTANTIVE MEANING OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION	NATURE OF EQUATION SYSTEM	COMPUTER USAGE
arts	higher	general	both	-	costs	descriptive	special surveys	long-term	numerical & applied	behavioural definitional	stochastic linear non-linear no differences	-	simultaneous	yes
arts	higher	general	stocks	-	expenditures costs	descriptive	-	time-independent	numerical & applied	-	-	yes, but not program. model	simultaneous	n.a.
arts	primary lower secondary upper secondary	general	both	both	capital stocks	decision	special surveys	time-independent	numerical & applied	behavioural	stochastic non-linear no differences	yes, but not program. model	simultaneous	yes
arts	higher	general	both	both	expenditures capital stocks	descriptive	other regular surveys special surveys	time-independent	numerical & applied	behavioural technological legal-institutional definitional	stochastic linear first order differences second or higher-order differences no differences	yes, and program. model	simultaneous	yes
arts	higher	general	flows	-	expenditures	decision	population census other regular surveys special surveys	time-independent	numerical & applied	behavioural	stochastic linear non-linear no differences	yes, but not program. model	independent	yes
hole	all	all	stocks	stocks	expenditures capital stocks costs	simulation with stochastic elements	population census special surveys	short-term	numerical & experimental	n.a.	n.a.	yes, and program. model	-	yes
hole	all	all	both	stocks	expenditures capital stocks costs	forecasting	population census other regular surveys	long-term	numerical & applied	-	stochastic non-linear	-	independent	yes
arts	higher	general	both	stocks	costs	descriptive	special surveys	time-independent	numerical & applied	behavioural	stochastic linear no differences	-	independent	yes
hole	all	all	both	both	expenditures capital stocks	decision	population census special surveys	long-term	numerical & experimental	technological legal-institutional definitional	deterministic linear no differences	yes, and program. model	-	yes
arts	higher	general	stocks	both	-	forecasting	other regular surveys	long-term	numerical & applied	behavioural definitional	deterministic linear first-order differences no differences	-	independent	no
arts	higher	general	both	-	-	forecasting	population census other regular surveys special surveys	long-term	numerical & applied	behavioural definitional	stochastic linear no differences	-	independent	no
arts	higher	general	flows	stocks	expenditures	descriptive	special surveys	time-independent	numerical & applied	behavioural	stochastic non-linear no differences	-	independent	yes
hole	all	all	both	both	-	decision	other regular surveys special surveys	medium-term	numerical & applied	n.a.	n.a.	n.a.	n.a.	n.a.
hole	all	all	both	both	capital stocks costs	simulation without stochastic elements	population census special surveys	long-term	numerical & applied	behavioural technological legal-institutional definitional	deterministic linear no differences	-	independent	yes
hole	all	all	-	-	-	descriptive	population census special surveys	time-independent	numerical & applied	technological	stochastic linear non-linear no differences	-	independent	yes
hole	all	all	both	both	expenditures capital stocks costs	simulation without stochastic elements	-	medium-term	theoretical	behavioural technological legal-institutional definitional	deterministic linear non-linear first order differences no differences	-	simultaneous	yes
hole	all	all	both	both	expenditures	decision	population census other regular surveys special surveys	long-term	numerical & experimental	behavioural technological legal-institutional definitional	deterministic stochastic linear non-linear no differences	-	block-recursive	yes

ORIENTATION OF	SUBSTANTIVE NATURE OF RELATIONSHIPS	MATHEMATICAL FORM	EXISTENCE OF PREFERENCE FUNCTION	NATURE OF EQUATION SYSTEM	COMPUTER USAGE	BASIS OF PARAMETER ESTIMATION	ECONOMETRIC/STATISTICAL TECHNIQUES	DATA FOR ECONOMETRIC/STATISTICAL ANALYSIS (time-series, cross-sectional)	CHANGES OF PARAMETERS OVER TIME	SENSITIVITY ANALYSIS	SPECIAL FEATURES	CONSTRUCTION [illegible] FOR A [illegible] AGENCY	CRITICAL ASSESSMENT	VALIDITY TESTS
rical & plied	behavioural definitional	stochastic linear non-linear no differences	-	simultaneous	yes	econometric/statistical analysis	multiple regression	cross-sectional	yes	description given	yes	no	d.n.a.	no
rical & plied	-	-	yes, but not program. model	simultaneous	n.a.	-	-	-	d.n.a.	-	n.a.	n.a.	n.a.	n.a.
rical & plied	behavioural	stochastic non-linear no differences	yes, but not program. model	simultaneous	yes	econometric/statistical analysis	multiple regression other multivariate techniques	cross-sectional	no	-	yes	no	d.n.a.	no
rical & plied	behavioural technological legal-institutional definitional	stochastic linear first order differences second or higher-order differences no differences	yes, and program. model	simultaneous	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression other multivariate techniques other methods	both	yes	description given	yes	no	d.n.a.	yes
rical & plied	behavioural	stochastic linear non-linear no differences	yes, but not program. model	independent	yes	econometric/statistical analysis	multiple regression other multivariate techniques	cross-sectional	yes	-	no	yes	yes	no
rical & perimental	n.a.	n.a.	yes, and program. model	-	yes	tabulation of data impressions of experts	-	-	no	-	yes	yes	no	no
rical & plied	-	stochastic non-linear	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	multiple regression	time-series	yes	description given	yes	yes	yes	yes
rical & plied	behavioural	stochastic linear no differences	-	independent	yes	econometric/statistical analysis	simple regression multiple regression other multivariate techniques	cross-sectional	no	-	yes	yes	no	yes
rical & perimental	technological legal-institutional definitional	deterministic linear no differences	yes, and program. model	-	yes	tabulation of data	-	-	no	-	yes	no	d.n.a.	no
rical & plied	behavioural definitional	deterministic linear first-order differences no differences	-	independent	no	tabulation of data impressions of experts	-	-	yes	description given	yes	no	d.n.a.	no
rical & plied	behavioural definitional	stochastic linear no differences	-	independent	no	tabulation of data impressions of experts	-	-	yes	-	yes	no	d.n.a.	yes
rical & plied	behavioural	stochastic non-linear no differences	-	independent	yes	econometric/statistical analysis	multiple regression other multivariate techniques	cross-sectional	no	-	yes	no	d.n.a.	no
rical & plied	n.a.	n.a.	n.a.	n.a.	n.a.	tabulation of data impressions of experts econometric/statistical analysis	simple regression multiple regression	n.a.	yes	-	no	yes	yes	no
rical & plied	behavioural technological legal-institutional definitional	deterministic linear no differences	-	independent	yes	tabulation of data impressions of experts econometric/statistical analysis	other methods	both	yes	description given	no	yes	yes	no
rical & plied	technological	stochastic linear non-linear no differences	-	independent	yes	econometric/statistical analysis	simple regression multiple regression	cross-sectional	no	description given	d.n.a.	no	d.n.a.	yes
retical	behavioural technological legal-institutional definitional	deterministic linear non-linear first order differences no differences	-	simultaneous	yes	-	-	-	d.n.a.	description given	no	no	d.n.a.	no
rical & perimental	behavioural technological legal-institutional definitional	deterministic stochastic linear non-linear no differences	-	block-recursive	yes	tabulation of data impressions of experts econometric/statistical analysis	simple regression	time-series	yes	description given	na	no	d.n.a.	no

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